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FACILITIES FOR STUDY AND RESEARCH

IN THE OFFICES OF THE UNITED STATES
GOVERNMENT AT WASHINGTON

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,

Washington, November 30, 1908.

SIR: I have the honor to transmit herewith a report prepared by President Hadley, of Yale University, on the facilities for advanced study and research in the offices of the National Government at Washington, and to recommend its publication as a number of the Bulletin of the Bureau of Education.

Especial interest attaches to this publication, and I am confident that it will be widely useful. It sets forth, in compact form, information which has frequently been sought by institutions and individuals engaged in scientific research, both in our own land and in foreign lands. In particular, it will answer numerous inquiries which arise in the graduate departments of our American universities.

The question has been asked repeatedly in the course of the collection of materials for this number, whether it is intended to have some bearing upon the effort to secure the establishment at Washington of a National University. It seems proper accordingly to make the following statement: That this publication is intended merely to convey accurate information concerning a matter of the highest educational interest, and not to serve as an argument, either pro or con, in any special propaganda. Its immediate purpose is to furnish information to advanced students and directors of research. It is inevitable that it should have an important bearing upon any discussions which may be had in the immediate future touching the establishment of a National University, but it is my intention that its part in any such discussion, shall be simply that of a source of reliable information.

In pursuance of this purpose, President Hadley in his editorial comment has limited himself to such guarded reference to the National University movement as seemed necessary to the completeness of his brief survey of the materials offered. This definition of the nonpartisan purpose of the publication, with which President Hadley is in full accord, is the only limitation which was proposed when the collected materials were placed in his hands for editorial arrangement and review.

The thanks of this office are due and are extended with all heartiness to those offices of the Government which have furnished the information which is here summarized. Every department and every independent office of the Government which was invited by the Secretary of the Interior to furnish such information has responded without exception. As a result the account here presented offers, so far as I am informed, the most complete survey that has ever been made of the facilities for research under governmental control provided at our national capital. Without such cooperation the undertaking would have been altogether impracticable. It is fitting to add that the personal interest and attention which you have given to the undertaking have greatly facilitated the gathering of the information which is here set forth.

Very respectfully,

ELMER ELLSWORTH BROWN,

Commissioner.

The SECRETARY OF THE INTERIOR.

FACILITIES FOR STUDY AND RESEARCH IN THE OFFICES OF THE UNITED STATES GOVERNMENT AT WASHINGTON.

BRIEF HISTORY.

From the very beginning the United States Government has been called upon to provide facilities for advanced study and scientific research and has shown itself active in meeting these demands.

In the year 1800, when the seat of Government was established at Washington, provision was at once made for establishing a library of Congress, under the direct control of the United States authorities, which should be the best institution of its kind in the Western Hemisphere. In spite of two fires—one in 1814 and the other in 1851—by which the collections of books were destroyed or greatly impaired, these intentions have been consistently realized. The Library of Congress is not only the largest collection of books in the country; it is, of all the large libraries in the world, the one whose collections are made most readily available for the scientific investigator of every grade. More than once in the history of the institution the question has arisen whether the Library of Congress should be treated as a circulating library for the casual reader or as a reference library for the serious student, and the answer has been in favor of the latter principle.

Simultaneously with the establishment of the Library at the beginning of the last century there was a recognition of the scientific importance of the census, of the probable necessity of government investigations in American ethnology, and of the need for the establishment of an adequate coast survey. In the year 1800 the American Philosophical Society, under the presidency of Thomas Jefferson, presented a memorial to Congress stating that "the decennial census offered an occasion of great value for ascertaining sundry facts highly important to society and not otherwise to be obtained," and praying that this object might be held in view in taking the next census. A similar memorial was presented by the Connecticut Academy of Arts and Sciences during the same year. Six years later the project of a coast survey was taken up by Secretary Gallatin and received the sanction of law in 1807.

The results of these early endeavors were not wholly satisfactory. The war with Great Britain and the political and material developments which followed it turned men's minds in other directions. Though the census schedules were somewhat enlarged, the methods employed were faulty and the results obtained were of little value until after 1830. The work of the Coast Survey during these years, in spite of the ability of its superintendent, Mr. Hassler, was scarcely more effective. But about 1840 there was a revival of scientific interest and scientific activity on the part of the Government which led to the accomplishment of large results. The census of 1840 showed a distinct improvement over its predecessors, and that of 1850 was a work of great positive value. The Coast Survey was reorganized in 1843 under the headship of Professor Bache, and its work was pushed with vigor and success. The Naval Observatory, established in 1842 under the title of "A Depot of Charts and Instruments for the Navy," gradually developed into a scientific institution of the first rank. The establishment of the Smithsonian Institution in 1846, by which the leading members of the United States Government became responsible for the administration of a large trust for the increase and diffusion of knowledge, marked another step in the direction of public encouragement of research.

After the year 1850 scientific interests at Washington were again somewhat crowded out by political ones. The good work of the institutions just described was continued, but few new ones were established (if we except the Weather Bureau, the Hydrographic Office, and certain specific surveys of importance) until after the close of the reconstruction period.

The organization of the United States Geological Survey in 1879 can perhaps be taken as marking the beginning of a new era. This era, which has continued to the present time, has been characterized by the gradual development and coordination of technical bureaus and technical researches in a large number of different lines—biological, chemical, and industrial. Starting usually on a small scale, as auxiliaries of the operations of some department of the Government, these bureaus have acquired independent importance, and have been so organized as to facilitate their development as separate institutions instead of subordinating it to the administrative needs of the department in which they originated. The investigations dealing with biology and chemistry, wherever they may have originated, have tended to go into the charge of the Department of Agriculture. The investigations in industrial and statistical science, wherever they have originated, have similarly gravitated toward the Department of Commerce and Labor. Under the Department of Agriculture we now find the Weather Bureau, the Bureau of Animal Industry, the

Bureau of Plant Industry, the Forest Service, the Bureau of Chemistry, the Bureau of Soils, the Bureau of Entomology, the Bureau of Biological Survey, the Office of Experiment Stations, and the Office of Public Roads. Under the Department of Commerce and Labor we find the Bureau of Corporations, the Bureau of Manufactures, the Bureau of Labor, the Bureau of the Census, the Coast and Geodetic Survey, the Bureau of Fisheries, the Bureau of Standards, and the Bureau of Statistics.

ADMINISTRATION VERSUS EDUCATION.

Of the extent and value of the researches made by these various offices and bureaus there can be no doubt whatever. The scientific results are admirable alike in quantity, quality, and range of subjects. Of the investigations which have given American science its credit and its standing in other countries, a surprisingly large proportion have been conducted in government departments. But it has been felt in many quarters that these bureaus were not administered in such a way as to have the maximum *educational* value. The work has not been done by students but by officials. The very fact that its scientific and administrative usefulness is so great has emphasized its lack of direct connection with the educational system of the country. It has been felt that if a larger number of students were trained in the government offices at Washington, this would form a natural development and culmination of our whole system of public instruction.

Under these influences the Fifty-second Congress, in the year 1892, passed the following joint resolution "to encourage the establishment and endowment of institutions of learning at the national capital by defining the policy of the Government with reference to the use of its literary and scientific collections by students."

Whereas large collections illustrative of the various arts and sciences and facilitating literary and scientific research have been accumulated by the action of Congress through a series of years at the national capital; and

Whereas it was the original purpose of the Government thereby to promote research and the diffusion of knowledge, and is now the settled policy and present practice of those charged with the care of these collections specially to encourage students who devote their time to the investigation and study of any branch of knowledge by allowing to them all proper use thereof; and

Whereas it is represented that the enumeration of these facilities and the formal statement of this policy will encourage the establishment and endowment of institutions of learning at the seat of Government, and promote the work of education by attracting students to avail themselves of the advantages aforesaid under the direction of competent instructors: Therefore,

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the facilities for research and illustration in the following and any other governmental collections now existing or here-

after to be established in the city of Washington for the promotion of knowledge shall be accessible, under such rules and restrictions as the officers in charge of each collection may prescribe, subject to such authority as is now or may hereafter be permitted by law, to the scientific investigators and students of any institution of higher education now incorporated or hereafter to be incorporated under the laws of Congress or of the District of Columbia, to wit:

- One.* Of the Library of Congress.
- Two.* Of the National Museum.
- Three.* Of the Patent Office.
- Four.* Of the Bureau of Education.
- Five.* Of the Bureau of Ethnology.
- Six.* Of the Army Medical Museum.
- Seven.* Of the Department of Agriculture.
- Eight.* Of the Fish Commission.
- Nine.* Of the Botanic Gardens.
- Ten.* Of the Coast and Geodetic Survey.
- Eleven.* Of the Geological Survey.
- Twelve.* Of the Naval Observatory.

Approved, April 12, 1892.

Nine years later this was supplemented by a further resolution, approved March 3, 1901:

That facilities for study and research in the government departments, the Library of Congress, the National Museum, the Zoological Park, the Bureau of Ethnology, the Fish Commission, the Botanic Gardens, and similar institutions hereafter established shall be afforded to scientific investigators and to duly qualified individuals, students, and graduates of institutions of learning in the several States and Territories, as well as in the District of Columbia, under such rules and restrictions as the heads of the departments and bureaus mentioned may prescribe.

The first of these acts was avowedly an attempt to encourage the incorporation of educational institutions in the District of Columbia. The second was an attempt to extend privileges to individual students without reference to their connection with any organized educational body.

It can not be said that either of these acts has produced results commensurate with the expectations. The George Washington University has, indeed, numbered among its members many students who were supporting themselves by work in the departments. But with the exception of certain students of medicine who have obtained valuable scientific privileges in the government hospitals, this connection has been a means of self-support for the student rather than of scientific training. The George Washington Memorial Association, founded in 1901, made it one of its main objects to direct the work of students pursuing their researches in the various departments. What might have come from this movement if it had been vigorously pursued it is impossible to tell. What actually happened was that the gift of Mr. Carnegie of \$10,000,000 for the establishment of the Carnegie Institution, a few months later, turned the thoughts of the promoters of the Washington Memorial Institution into other chan-

nels by giving them funds under their own control with which to direct researches; instead of making them dependent upon the close cooperation of the departments at Washington. Under these circumstances the movement, as an organized movement, was abandoned. The student who comes to Washington to-day to get his scientific training in a government department comes under his own impulse and at his own risk.

EXISTING FACILITIES FOR STUDY AND RESEARCH.

The existing facilities for study and research divide themselves into three groups:

1. Facilities open to the *general public*; to wit, libraries and museums.
2. Training schools for *class* instruction in preparation for specific departments of the government service.
3. Laboratory facilities and personal instruction available to *individual* investigators in the various government offices, whether these investigators be actually in the employ of the Government or not.

FACILITIES AVAILABLE FOR THE GENERAL PUBLIC.

The Library of Congress on June 30, 1907, contained 1,434,000 printed books and pamphlets, including the books deposited in the Smithsonian Institution and the law library of 122,000 volumes, which, while a division of the Library of Congress, still remains at the Capitol; besides 98,000 maps and charts, 465,000 pieces of music, and 254,000 photographs and prints.

On June 30, 1908, the number of printed books and pamphlets had increased to 1,535,008.

Both in the arrangement of the Library and the rules regarding its use, every facility is given to investigators. For reference use the Library is absolutely free, without introduction or credential, to any inquirer from any place. The general reader is supposed to carry on his work in the main reading room; but if he is pursuing investigations which imperatively require access to the shelves he receives the necessary permission, and if he is engaged in research involving continuous use of a number of the same books day after day, he is given a table in an alcove. If he desires to dictate to a stenographer he is assigned a separate room for doing so. There is no limit to the number of books which he may draw for reference use.

The arrangement of the catalogues and the organization of the Library staff are such as to facilitate to the utmost the work of the independent inquirer of every grade, from the casual reader, who wants a specific piece of information, to the scientific investigator,

who wants to find everything that has been printed on a particular topic.

The usefulness of the Library as an aid to scientific research is by no means limited to the work done within its own walls. Doctor Putnam, the Librarian, has, during the nine years of his administration, developed a system of cooperation between the different libraries of the country which is of inestimable advantage to investigators everywhere. It is now possible for students in any of our large libraries to find out pretty accurately the books that are to be had and the work that can be done in the others. By the system of interlibrary loans the material in the Library of Congress is actually put at the disposal of responsible investigators all over the country. Under this system the Library of Congress will loan certain books to other libraries for the use of investigators engaged in serious research. This means that any scholar or advanced student who is within reach of a responsible local library which can guarantee proper care of the books can obtain, without the expense of going to Washington, the opportunity to study large classes of scientific and literary material which the Library of Congress possesses, and which the local library can not expect to possess. The importance of this system to the scholars of the country can not possibly be overestimated.

Libraries of the separate departments and bureaus of the Government.—There are some twenty-five of these, probably containing a total of nearly 1,500,000 volumes and pamphlets,* the great majority of them, however, duplicates of material existing in the Library of Congress.

*A detailed estimate of the number of volumes in these libraries, published by Mr. C. D. Walcott seven years ago, reads as follows:

Library.	Books.	Pam- phlets.	Maps.
Army Medical Museum	135,058	229,546	
Department of Agriculture	68,000		
Bureau of Education	31,572	140,000	
Patent Office	74,140		
Department of State	68,000	2,500	
Geological Survey	47,800	77,027	29,185
National Museum	26,000	80,000	
Coast and Geodetic Survey	16,406	6,178	25,000
Weather Bureau	18,000	5,000	
Museum of Hygiene	11,969		
Hydrographic Office	8,000		
Bureau of Ethnology	12,000	4,000	
Bureau of Statistics	6,000	5,000	
Department of Justice	30,000		
Department of Labor	7,051	4,454	
Corcoran Gallery of Art	2,500		
Treasury Department	22,000	3,000	
War Department	49,000	2,000	
Navy Department	33,435		
Interior Department	15,000		
Post-Office Department	12,000		
Light-House Board	5,000		
War Records Office	2,000		
Naval Observatory	20,000	4,000	
Nautical Almanac Office	2,500	2,500	
	709,400	515,299	54,185

By far the most important of these libraries, in public use as well as in number of books, is that of the Surgeon-General's Office. This library deals with all branches of medicine, surgery, and the allied sciences. It provides a reading room for the general public and special facilities for competent investigators who desire to make scientific researches. Great use is made by the medical profession of the country, and even by investigators from other countries, of the facilities here offered. The libraries of the State Department also contain unique material—more valuable to the special investigator than to the general student, who will, as a rule, find his needs better met in the Library of Congress. The various military and naval records in the libraries of the departments at Washington also possess an importance to the student of history which is wholly disproportionate to their bulk. But, on the whole, it may be said that most of the departmental libraries are arranged, and should be arranged, with primary reference to the needs of the administrative force of the several departments, and that the work of the outside investigator can be better cared for in the Library of Congress, which is arranged with a view to his needs and purposes, than in any departmental library, however complete.

This is not intended as a criticism on the administration of departmental libraries. They are, as a rule, handled generously as well as efficiently. There is an evident desire on the part of those in charge to have the books used by persons outside of the department as well as inside. But most of the government bureaus receive large numbers of books and pamphlets which they find it hard to take care of, and harder still to arrange to utilize.

The Bureau of Education has been a special sufferer under this difficulty, and has taken practical and efficient measures to remedy it. In his statement to the Secretary of the Interior for the year ending June 30, 1908, the Commissioner of Education says:

Under the direction of the new chief of the library division, Mr. William Dawson Johnston, the library of the bureau has been thoroughly overhauled and reorganized. The first task here was to strip the collection down to its most effective working basis by the removal of all books and other matter no longer needed or suitable for the purposes of such a special library. The pieces so removed were transferred to the Library of Congress and the District library, under the provisions of the legislative, executive, and judicial appropriations act of February 25, 1903. The following statement shows the number of pieces so transferred:

Bound volumes	28, 851
Pamphlets	15, 512
Periodical numbers	16, 2
Total number of pieces	58, 604

This constitutes, as I am informed, one of the largest transfers in the history of American libraries. It was made with a view solely to the increase of the working value of the library of the bureau, and that end has clearly been attained.

Museums.—The most important of these are the National Museum and National Gallery of Arts, under the control of the Smithsonian Institution. The sciences most fully illustrated in the National Museum are zoology, botany, and geology, including palæontology, and the ethnology and archæology of North America.

The technical subjects best represented are firearms, land and water transportation, methods of lighting, time-taking devices, measuring apparatus, electrical appliances, ceramics, and glass making and decoration. The collections are much used for serious study, and would be used still more if it were not for the limitations of space. Apart from the general enjoyment of the exhibits by the public, it seems probable that at least two hundred investigators have availed themselves of the special facilities for study during the fiscal year 1908. In the laboratories and working rooms of the museum, however, there is practically no opportunity for outside students, owing to the limitations of space.

Like the Congressional Library, the National Museum will sometimes send material away from Washington to be studied, in cases where it is impossible for the investigator to come to the museum. The regulations regarding investigators are as simple as possible. Little is required other than an assurance of good character and scientific ability. As a rule, a brief indorsement from a scientific man of reputation or from the head of an institution with which the applicant is connected, is all that is needed.

The Smithsonian Institution also has valuable material for the student in connection with its Bureau of Ethnology and its Zoological Park. The National Botanic Garden is independent of the Smithsonian Institution, but affords opportunities for study on closely allied lines.

Hardly second in importance and reputation to the collections of the Smithsonian Institution are those of the Army Medical Museum. Among the departmental collections special mention should also be made of the museum in the Agricultural Department, and of the models and drawings of the Patent Office.

ARRANGEMENTS FOR THE TRAINING OF CLASSES.

The most important training schools conducted by the Government at Washington are the medical schools of the United States Army and Navy. These are organizations for the benefit of graduates of medical schools who need preparation for the special problems

which will meet them in the service of the United States Government. The course is in every case a brief one; beyond the fact that it is well conducted, the detailed work requires little comment. Of a similar character, but perhaps even more distinctive, have been the classes organized by the Public Health and Marine-Hospital Service for the students who desire to prepare themselves for the special problems confronting that branch of the Government.

The facilities of the Government Hospital for the Insane are well utilized in connection with the instruction of medical students in George Washington University, and an effort has been made to render the collections of the Botanic Garden similarly useful to classes of college students.

Perhaps the most interesting class instruction in connection with any of the departments at Washington is that furnished by the Bureau of Standards. The assistants in this bureau receive from their chiefs regular instruction in the theoretical problems of physics connected with their work. The reports regarding the results of such instruction are extremely favorable. These classes and conferences enable the force of the department to do better practical work than it could without such training. Their results not only enable the assistants to qualify themselves for promotion within the department faster than they could otherwise, but they increase the demand for their services outside of the department in the manufacturing and mechanical industries of the country when they have reached the limit of the possibilities of their promotion at Washington.

OPPORTUNITIES FOR INDIVIDUAL RESEARCH.

The students who desire to avail themselves of these opportunities fall into two pretty distinct groups.

1. Investigators of mature age and independent resources, who have definite problems to solve for which the departments in Washington furnish more suitable or more accessible material than is to be found elsewhere.

2. Students not yet wholly established in their profession, who desire not only material for study, but also a certain amount of guidance and help from their superiors, and who wish to use their studies as a means of winning position for themselves as well as knowledge for the world.

As things stand at present the first of these classes can be well accommodated at Washington. The number of investigators who can take care of themselves and who have definite ends in view is small. It is such a pleasure to the head of a department to see a scientific man who can direct his own work and who has a definite end in view that he is always willing to make room for him in a laboratory, no matter how crowded it is.

With representatives of the second class the case is different. They can not as a rule take care of themselves. They want suggestions concerning the ends to be pursued, no less than concerning the means to be employed. They are men who need education instead of simply needing opportunity. It is this class which most people have in mind—a class of students who desire to obtain their technical and their advanced scientific training in immediate connection with some of the departments of government work. With regard to the development of these facilities it must be confessed that the results are disappointing.

In the year 1901 an unofficial inquiry was instituted by Mr. Walcott, at that time Director of the Geological Survey, concerning the possible number of students on different subjects who could be accommodated in the various departments and bureaus at Washington. The results were as follows:

	Students.
1. History and diplomacy.....	5
2. Historical research.....	10
3. Library administration and methods.....	15
4. Statistics.....	5
5. Magnetism.....	2
6. Meteorology.....	15
7. Tides.....	2
8. National Standards (Bureau of).....	—
9. Astronomy.....	8
10. Physics.....	3
11. Hydrography.....	10
12. Cartography, etc.....	5
13. Topography.....	20
14. Chemistry.....	10
15. Mineral resources.....	5
16. Geology.....	17
17. Paleontology.....	7
18. Animal industry.....	25
19. Anthropology and ethnology.....	13
20. Zoology.....	50
21. Botany.....	25
22. Forestry.....	20

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A similar inquiry to-day would scarcely meet so favorable a response. It is doubtful whether the different officials would be willing to accommodate more than one-third of the number contemplated as possible in 1901. Some of the offices which had hoped to accommodate students are prevented by lack of room. Others have already tried student assistance and found it unsatisfactory. Several of the offices which contributed the largest numbers to the above table now say explicitly that they have no accommodations. This is true of the Weather Bureau, of the Hydrographic Office, of the Geological Sur-

vey, of the Bureau of Animal Industry, and of the Forest Service. The only offices which express any appreciable readiness to provide for student assistants are as follows:

Public Health Service.....	Five or six.
Military War Records.....	Fifteen.
Naval Observatory.....	A few.
Naval War Records.....	A limited number.
Patent Office.....	In library.
Bureau of Education.....	Six or eight.
Hospital for Insane.....	Some.
Bureau of Plant Industry.....	A few.
Bureau of Chemistry.....	If they come as officials.
Bureau of Entomology.....	A limited number.
Office of Public Roads.....	Eight.
Office of Experiment Stations.....	One.
Bureau of Manufactures.....	For very brief periods.
Census Bureau.....	Perhaps.
Coast Survey.....	About six.
Bureau of Fisheries.....	Twelve.
Bureau of Standards.....	A considerable number.
Bureau of Statistics.....	Some.
Astrophysical Observatory.....	Some.

These numbers are vague; but after making due allowance for all uncertainties, it would seem difficult to make them add up to 100.

But whether we estimate the number of places now open to students a little higher or a little lower, it is perfectly clear that we have not moved in the direction of making Washington a place for student training and student research. A few years ago there were eight or ten bureaus which had a system of student assistance. Now there are but one or two. The educational work initiated a few years ago with so much hope for the future is on the whole tending to diminish rather than to increase. Department officials who at the outset were sanguine concerning the possibilities in this direction to-day show themselves exceedingly skeptical.

OBSTACLES TO STUDENT RESEARCH.

What are the obstacles or difficulties which have prevented the development of so attractive a plan?

They may be grouped under three heads: The space difficulty, the administrative difficulty, and the educational difficulty.

1. The space difficulty. A great many of the departments are so crowded that they have no room for students. The presence of an untrained man would crowd the trained man out of the necessary desk room. This is notably true of the Geological Survey. In its field parties the United States Geological Survey has been an educa-

tional institution of vast importance. A large number of the younger geologists of the present day have derived their inspiration and their scientific development from this source. But what Van Hise could do in the field Walcott could not do at Washington, for the mere physical reason that there was no place to do it in. The offices of the bureau were and are still inadequate for the work expected of it.

This difficulty is likely to continue. There is a tendency on the part of every large government undertaking to outgrow its quarters. Give it more room, and it will undertake more objects. This sort of vitality is the very best thing to have in a government bureau, but it makes it harder for the officials in charge to find room for students.

2. The administrative difficulty. Even in those bureaus whose work has not passed beyond the capacity of the rooms accorded to them, as is the case with many of the newer bureaus in the Department of Agriculture, there is another allied difficulty which meets us, lack of funds. The problem for every chief is to get his work done in the most efficient and economical manner. Even where Congress is liberal in its appropriations—and for many of these bureaus the treatment has been as liberal as could be expected—the bureau chief has to study ways and means pretty carefully. He wants to do all the administrative work he can with the money placed at his disposal.

The presence of students interferes with the chance of obtaining this maximum of efficiency. The labor of student assistants is as a rule neither very efficient nor very easy to handle. An untrained man employed at \$500 rarely does half as much work for his chief as the trained man at \$1,000. The work of supervising two \$500 men takes a great deal more of the time and strength of the higher officials than the work of supervising a single \$1,000 man. Of course there may be indirect results which justify this expenditure of money and time. If a bureau finds that there are not enough men who are technically trained for the work which it has undertaken, it must train them itself. The expenditure of money and time involved in their training is a necessary means to an end. But where the educational object is an independent one—where it is not undertaken as a necessary preliminary to getting the work done, but as a means of outside public service in connection with the work that is already progressing—then it represents a costly diversion of time, strength, and money.

Of course there are exceptions to this general rule. The Bureau of Standards is a marked instance in point. The development of the researches in this bureau must necessarily go hand in hand with the development of the men who make the researches. Hence the educational side of this bureau is much more fully developed and

much more successful than that of most others. In the majority of cases the educational work is no integral part of the administrative work. If one side must be sacrificed, it is the educational side. This is necessary and right. The main work of our offices is and must be administrative. A bureau chief who should neglect his main work for the sake of a subsidiary or incidental one would be forfeiting his trust.

If, under these circumstances, Congress wishes the bureaus to undertake educational work on a large scale, it ought to make a specific appropriation for the purpose. But it does not seem likely that this policy will be adopted. A great many people who are in favor of using government bureaus as a means of education, if it can be done at little loss or expense, would view the policy in a wholly different light if it was shown that it cost as much money to do it there as anywhere else.

3. The educational difficulty. Even if we had room enough and appropriations enough it is doubtful whether the government bureaus, regarded from the purely educational standpoint, furnish as advantageous a training place as many people suppose.

This is a subject on which it is difficult to generalize. Certain bureaus are first-rate training places *for some men*. The student who has chosen his line of life and has had his preliminary theoretical training can often spend his last year of study with great advantage in immediate connection with the chiefs under whom he is going to serve; and if his promotion depends upon his success in doing the work they want, it will furnish a stimulus to him and a help to them. But where these conditions are absent—where the man's promotion does not depend upon the chief under whom he is studying, where his studies are not being turned to a particular form of government service, or where he is deficient in the necessary theoretical training—the case is reversed. By all means let the government offices accommodate as many special students as their facilities and appropriations will admit; but let these students get their theoretical training elsewhere if we wish to secure the maximum efficiency and economy from the educational standpoint as well as from the administrative one.

The fact is that to nine men out of ten a good school is a better training place in the theory of a man's profession than any ordinary office or bureau.

We have passed beyond the stage of the student assistant. At the beginning of the nineteenth century any man who wanted technical training tended to seek it in the office where technical work was done. The man who intended to be a lawyer went into a law office; the man who intended to be a doctor went into a doctor's office; the man who intended to be a minister went into a minister's study; the man who intended to be an engineer carried chain for an engineer. There are

still people who think that this is the only way in which a man can really be educated; but they are getting fewer and fewer every day. Practical experience is against them. The man who goes to a good law school, if he uses his time properly, can learn more law in three years under the new system than he learned under the old system in twice that time. The same thing is true of medicine, of engineering, or any of the different branches of technology. A teacher who makes it his business to educate can do this side of the work more effectively than a practitioner with whom the training of his assistants is and can be only an incidental matter. It is simply an instance of the advantages of division of labor. It is better to have a trained teacher do the teaching in places arranged for teaching, and a trained administrator do the business in the places arranged for business, than to try to mix the two things up. While this is not an absolutely universal rule, it holds true in the vast majority of cases.

For seven years, from 1899 to 1906, the Forest Service of the United States provided for a system of student assistance. Two years ago this system was abandoned. Why? Nominally because the problems which confronted the service had grown too complex to leave room for any untrained men in government forestry; actually because the forest schools of the country had trained enough men who were capable of handling complex problems to allow the Forest Service advantageously to specialize upon this, its proper work, and leave the educational work to the schools. The course of events here is typical of what has happened to almost every large line of business in the course of the last hundred years. There has been a tendency to separate the educational from the administrative side, because both sides could be better attended to if they were kept apart. When the Forest Service, after seven years' trial, abandoned the experiment of student assistance, it simply repeated the history through which hundreds of other kinds of offices, public and private, have been passing during the nineteenth century.

The question is often asked how far the establishment of a national university, which could take care of the preliminary theoretical training of the students and relieve the department officials of much of the purely educational work, might alter or modify these conclusions.

The question concerning the advantages of a national university is too large a one to be here discussed in its entirety, and really forms no part of the subject of this report. We are concerned with what can be done at Washington under the existing system rather than with what might be done under some other system. It may be said provisionally that the presence of the scientific bureaus of the Government would be of great advantage to a university, but that it is very doubtful whether the presence of a university would be of advantage to the scientific bureaus of the Government. The uni-

versity could gain, not only by having large libraries and museums within easy reach, but by being able to call for advice and help upon the scientific investigators engaged in government work. But it does not appear that these investigators, now employed in government service, could expect a corresponding benefit to themselves or their departments from the establishment of a university. Some of them, who have the teaching instinct, would value highly the opportunity for the instruction of university classes, and could exercise a large influence in this manner. But it is only a minority of the bureau chiefs who could do effective work in this way. The qualities which make a successful administrator are not always, or perhaps generally, those of a successful educator. And even with those men who were really fitted to contribute to the success of the university the work they might do in that way would represent in large measure a subtraction from the time and strength which they now devote to the organization of the researches immediately under their charge. While the establishment of a university at Washington would make it a little easier for the departments to meet the needs of students than it now is, it would tend to create an increased pressure upon the departments to accommodate students who had not had the necessary degree of preliminary training, or acquired the necessary definiteness of purpose, to make them contribute to the efficiency of the staff. From the standpoint of the departments, the advantage in one direction would generally be outweighed by the disadvantage in the other.

CONCLUSIONS.

The conclusions of this report may be summed up as follows:

There is an increasing opportunity for the work of advanced study and research at Washington; but this work, under present conditions, is and must be done by officials rather than by students.

The various libraries, collections, and offices of the Government are thrown open with the utmost liberality to investigators of every kind. But we have nothing which can be regarded as a system of training for advanced students in the various departments of scientific work, except a relatively small number who are qualifying themselves for promotion in the government service itself. The efforts made a few years ago to develop a system of training schools within the departments of the Government itself have not been crowned with success. Some are hindered by want of space, others by the demands of administrative economy, and others yet by the fact that there are so many instances where education and business are both better done if the schools do the educating and the offices the business.

APPENDIX.

In order to collect the material necessary for the preparation of this report, the Department of the Interior made inquiry in the month of May, 1908, of the bureaus and institutions mentioned in the acts of 1892 and 1901, and of certain others which had been more recently established, concerning the facilities which they furnished for advanced study and research. The questions asked were as follows:

1. Date of establishment of this office in its present status.
[Information concerning work of a similar kind under government auspices, prior to the establishment of this office in its present status, may be briefly noted, or reference made to publications in which such information is presented most concisely and satisfactorily.]
2. Facilities offered for advanced study and research prior to the year 1908.
[A brief narrative and descriptive statement is desired, such as may be incorporated verbatim in the proposed bulletin. If more convenient, reference may be made to publications in which such information is already accessible; or, if such information is not at hand and can not be collected without undue expenditure of time, answer may be omitted altogether.]
3. A more detailed account of such facilities offered during the fiscal year 1908.
[Statements are desired with reference to (a) library facilities, (b) laboratory facilities, (c) direction and supervision of students, (d) special opportunities for study and training afforded to members of the office force, (e) provision for the appointment of student assistants for either part-time or whole-time employment, and (f) additional information.]
4. Number of persons availing themselves of such facilities during the fiscal year 1908.
[Including, if practicable, a list of names and addresses, together with some indication of the previous training of each person and of the work done by him here. If preferred, the answer may take the form of a statement of the number and character or class of such persons and the type of inquiry in which they are engaged.]
5. Facilities offered for the fiscal year 1909.
[Statement in such form as may be incorporated verbatim in the proposed bulletin. Facilities not now offered but which may be made available to students in the near future might well be mentioned. Where the facilities referred to depend upon an estimated increase in the appropriation for the year, concerning which the action of Congress is still uncertain, this fact should be noted. Answer may be limited to a reference to information given under 3 where this is deemed a sufficient announcement for the coming year.]
6. Regulations and suggestions concerning the conditions of admission to the use of such facilities.
[It would be serviceable to know whether admission to the use of the facilities is limited to any particular type of inquirer: whether, for instance, solely to those pursuing original investigation calculated to advance the boundaries of knowledge, or, in addition, to students doing graduate work in connection with some higher institution, or to all students. Some indication of the number of students who can be accommodated should be included. The conditions governing appointment to student assistantships or analogous positions should be noted.]
7. Additional information and remarks.

These inquiries were transmitted by the Secretary of the Interior to the various departments of the Government accompanied by a letter similar in form to the following. In the case of those offices not included in any government department, the accompanying letter was modified to adapt it to the circumstances of the case.

DEPARTMENT OF THE INTERIOR,
Washington, May 12, 1908.

The honorable the SECRETARY OF STATE.

Sir: Inquiries are made from time to time at the Bureau of Education with reference to the facilities now offered for advanced study and research in the government offices at Washington, under the provisions of the joint resolution of Congress approved April 12, 1892, and the act of Congress approved March 3, 1901. With a view to answering such inquiries and with a view also to furnishing comprehensive information with reference to this matter for the use of the graduate schools of our universities, the Commissioner of Education is desirous of issuing a special bulletin dealing with the subject, and has secured the service of President Ira Remsen, of the Johns Hopkins University, in the capacity of editor of such bulletin.*

You will readily understand that what is contemplated is not the preparation of an official report concerning operations under the acts referred to, which the Bureau of Education is neither directed nor empowered to make, but merely the assembling of such information as will meet the needs of instructors and students throughout the country. Such a publication as will serve this purpose can be prepared only with the cooperation of the heads of the several government offices concerned. I have received assurances that such cooperation will be freely extended. I trust that you will find it proper and possible to assist in this undertaking, by furnishing such information as is indicated on the inquiry blank inclosed herewith, with reference to the following offices of the Department of State: The Bureau of Indexes and Archives, and the Bureau of Rolls and Library.

This form of inquiry has been prepared in consultation with President Remsen, with a view to bringing together the information from the several offices in something approaching uniformity of arrangement and presentation. It is not unlikely, however, that in some offices certain variations from this plan will be found necessary to a fair presentation of essential facts concerning those offices. I inclose a copy of this letter for the information of each of the offices referred to.

For convenience of reference there has been added to the circular of inquiry the text of the congressional enactments to which reference has been made, and a provisional list of the government offices to which this inquiry is to be sent is inclosed herewith.

If convenient, will you kindly furnish this office with the information asked for before the end of this current month.

I have the honor to be, very respectfully,

(Signed) JAMES RUDOLPH GARFIELD,
Secretary.

* A few weeks later President Remsen was obliged by the pressure of immediate and unusual duties to withdraw from this engagement.

The complete list of offices to which the inquiry was sent is as follows:

Library of Congress.

Department of State:

Bureau of Indexes and Archives.

Bureau of Rolls and Library.

Treasury Department:

Public Health and Marine-Hospital Service.

Department of Justice:

Library.

War Department:

Library of the Surgeon-General's Office.

Museum of the Surgeon-General's Office.

Bureau of Insular Affairs.

Office of the Chief of Staff.

Navy Department:

Hydrographic Office.

Naval Observatory.

Naval Medical School and Hospital.

Naval War Records Office and Library.

Department of the Interior:

General Land Office.

Patent Office.

Bureau of Education.

Geological Survey.

Reclamation Service.

Government Hospital for the Insane.

Department of Agriculture:

Weather Bureau.

Bureau of Animal Industry.

Bureau of Plant Industry.

Forest Service.

Bureau of Chemistry.

Bureau of Soils.

Bureau of Entomology.

Bureau of Biological Survey.

Office of Experiment Stations.

Office of Public Roads.

Library.

Department of Commerce and Labor:

Bureau of Corporations.

Bureau of Manufactures.

Bureau of Labor.

Bureau of the Census.

Coast and Geodetic Survey.

Bureau of Fisheries.

Bureau of Standards.

Bureau of Statistics.

Interstate Commerce Commission.

International Bureau of American Republics.

Isthmian Canal Commission.

National Botanic Garden.

Smithsonian Institution :

National Museum and National Gallery of Art.
 Bureau of American Ethnology.
 National Zoological Park.
 Astrophysical Observatory.
 Bureau for the International Catalogue of Scientific Literature.
 International Exchange Service.

It was requested that the information be furnished in such a form that it might be quoted if the Bureau of Education should find it desirable to do so. The majority of the answers were framed with such care that the bureau believes it advantageous to publish them nearly in full. Exception has been made in case of the reports of a few of the departments which, owing to their limited means or to the confidential character of the work intrusted to their charge, are unable to afford much assistance to the general student. The replies of other departments have been abridged by the omission of catalogues of literature collected or published, whose inclusion would have swelled this report beyond its natural limits.

REPLIES MADE BY THE VARIOUS DEPARTMENTS AND OFFICES
 TO THE INQUIRIES OF THE SECRETARY OF THE INTERIOR

LIBRARY OF CONGRESS.

(Officer reporting: Herbert Putnam, Librarian.)

1. 1897. This date is that of the completion of the new library building, which marks the beginning of the opportunity and service of the library as the National Library of the United States.

While still at the Capitol, however (that is, from 1800 to 1897), the library was free for reference to all inquirers, and within its abilities rendered valuable service as a general research library, as well as one for governmental use.

2. The resources and facilities are indicated passim in the annual reports of the Librarian 1897-1907. See especially the Manual attached to that for 1901.

3. The Library is still the Library of Congress, and as such has a special duty to Congress. It is also (1) the law library of the Supreme Court of the United States, and (2) the central library for all the executive departments and bureaus at Washington.

Subject to the convenience of the Government, it is a free reference library for the general public. As such its interest is particularly to aid research calculated to advance the boundaries of knowledge. All of its collections are available to this end, and they comprise now (in round numbers) 1,500,000 books and pamphlets, 100,000 maps and charts, 470,000 volumes and pieces of music, 250,000 prints, and a great collection of manuscripts indispensable to the student of American history. It receives by operation of law all books copyrighted in the United States, and by exchange the official publications of all governments and most learned societies and institutions. Its expenditures for purchase now total

\$108,000 a year. In its selection for purchase it will gladly give preference to material desired by investigators for immediate use. It receives currently nearly 7,000 serials, including about 1,200 newspapers. The resident or visiting investigator can be given a special desk where he may reserve material from day to day, and, if necessary, direct access to material on the shelves. Upon special permit he may withdraw material for home use. The specialists of the Library, of whom there are a number in various fields of knowledge, will gladly give assistance in the bibliography of their subjects.

Investigators not able to visit Washington may secure the loan of material by application through their local libraries.

The main reading room has accommodation for 250 readers, but the building as a whole for a thousand. No credential is required for its reference use, and no formality beyond the minimum requisite for safety.

Special strength of collection.—Manuscripts (for American history), official documents, maps and charts, music, prints, society publications, law, history, and political and social science. Other departments are now being rapidly and systematically developed. (In four are already special collections of importance: Russian, Chinese, Japanese, and Sanskrit literature.)

Note.—Special fields not emphasized because covered by other governmental libraries, are Medicine, Agriculture, Geology, and Education.

4. We do not keep statistical records to enable us to answer this question, nor does the inquiry seem to demand it. The number of persons using the library is, as a whole, about the number that would use a large municipal library. The classes of persons may be divided into three: Members of Congress; visiting investigators; resident investigators.

The resident use is obvious. The visiting investigators may be indicated by the following: Historians, mostly professors in American universities; economists; scientists, in connection with advanced work of the government bureaus and for personal work; candidates for doctors' degrees.

5. Same as for 1908.

6. For reference use the Library is absolutely free, without introduction or credential, to any inquirer from any place; and it is open from 9 a. m. until 10 p. m., and on Sundays and most holidays from 2 p. m. until 10 p. m.

The general reader is supposed to carry on his work in the main reading room. If, however, he is pursuing investigations requiring access to the books upon the shelves, he will be admitted to the shelves if his work imperatively demands it, and if he can not be served by having the books brought to him. Such access is, of course, subject to the convenience of the administration. If a reader is engaged in research involving the continuous use of a number of the same books day after day, he will be given a table in an alcove, where they may be set aside for him; if he desires to dictate to a stenographer, a separate room, where he may do so without inconvenience or publicity.

There is no limit to the number of books a reader may draw for reference use. For books from the stacks to be used in the reading room he makes out a call slip, signing his name and residence. But there are available to him without this formality, or the intervention of an attendant, some 15,000 volumes of reference books in this room, 2,700 current newspapers and periodicals in the periodical reading room, and much material in other parts of the Library.

In the very early years (circa 1815), and again from about 1894-1894, the privilege of drawing books for home use was permitted to any resident of the District making a deposit as security. From time to time since then, and especially before the Public Library was in efficient operation in its new building, appeals have been made for the revival of this privilege. A communication from the Librarian to the chairman of the Senate Library Committee, January

27, 1908, was induced by such an appeal, which caused the introduction of a resolution into the Senate. The view held was adverse to the proposal to make the National Library a general circulating library, but emphasized the sympathy of the authorities with every application for the home use of books resting upon a serious need not to be satisfied by reference use nor by the Public Library of the District. A distinction is easy, for the function of the latter is peculiarly to aid the general reader and the younger reader, including the pupils of the common schools. This leaves to the Library of Congress the investigator proper.

The statutory designations of persons (rather classes) within the District who should have the privilege of books for home use are as follows: President, Vice-President, ex-Presidents of the United States, Senators, Representatives, Delegates, heads of departments, Chief Justice of the Supreme Court, Associate Justices of the Supreme Court, reporter of the Supreme Court, clerk of the Supreme Court, members of the Diplomatic Corps, judges of the Court of Claims, clerk of the Court of Claims, Solicitor-General, assistant attorneys-general, secretary of the Senate, clerk of the House of Representatives, chaplains of the two Houses of Congress, Solicitor of the Treasury, the financial agent of the Joint Committee on the Library, Smithsonian Institution through its Secretary, regents of the Smithsonian Institution, members of the Interstate Commerce Commission, secretary of the Interstate Commerce Commission, Chief of Engineers of the Corps of Engineers of the United States Army, Chief Justice of the Court of Appeals of the District of Columbia, associate justices of the Court of Appeals of the District of Columbia, associate justices of the Supreme Court of the District of Columbia, Chief Justice of the Supreme Court of the District of Columbia.

A resident of the District engaged in serious investigation, and having some special need which can not be met by reference use, may apply to the Librarian for a special permit which may meet this need.

The duty of the National Library is to aid the unusual need with the unusual book, not only by supplying a reader on the premises, but by making books available to the research worker, even if he is not in Washington. When, therefore, it receives a call for a book in its possession which is not accessible to the applicant elsewhere, and it is a book required by him for serious investigation, and it can at the moment be spared from Washington, it is lent, through another institution.

The principles governing the operation of the interlibrary loans are described in the following memorandum, which was put forth as a circular at the inception of the system:

Under the system of interlibrary loans the Library of Congress will lend certain books to other libraries for the use of investigators engaged in serious research. The loan will rest on the theory of a special service to scholarship which it is not within the power or the duty of the local library to render. Its purpose is to aid research calculated to advance the boundaries of knowledge, by the loan of unusual books not readily accessible elsewhere.

The material lent can not include, therefore, books that should be in a local library, or that can be borrowed from a library (such as a state library) having a particular duty to the community from which the application comes; nor books that are inexpensive and can easily be procured; nor books for the general reader, mere text-books, or popular manuals; nor books where the purpose is ordinary student or thesis work, or for mere self-instruction.

Nor can it include material which is in constant use at Washington, or whose loan would be an inconvenience to Congress, or to the executive departments of the Government, or to reference readers in the Library of Congress.

Genealogies and local histories are not available for loan, nor are newspapers, the latter forming part of a consecutive historical record which the Library of

Congress is expected to retain and preserve, and only for very serious research can the privilege be extended to include volumes of periodicals.

A library borrowing a book is understood to hold itself responsible for the safe-keeping and return of the book at the expiration of ten days from its receipt. An extension of the period of loan is granted, upon request, whenever feasible.

All expenses of carriage are to be met by the borrowing library.

Books will be forwarded by express (charges collect) whenever this conveyance is deemed necessary for their safety. Certain books, however, can be sent by mail, but it will be necessary for the borrowing library to remit in advance a sum sufficient to cover the postal charges, including registry fee.

The Library of Congress has no fund from which charges of carriage can be prepaid.

A service of the Library distinct from that involved in the actual loan of books is that performed by answer to inquiry through correspondence. The character of the questions which the Library answers most willingly is noted below:

1. As to its possession of a particular book.
2. As to the existing bibliographies on a particular subject.
3. As to the most useful existing authorities on a particular subject and where they may be available.
4. As to the author of a book by a known title.
5. As to the date, price, and probable present cost of a specified book.
6. For the source of a particular quotation, if ascertainable by ready reference.
7. (If not requiring elaborate research) for other particular facts in history or literature; in the organization or operations of the Federal Government.
8. (Where of moderate extent) for an extract from a book in its possession.

DEPARTMENT OF STATE: BUREAU OF INDEXES AND ARCHIVES.

(Officer reporting: John R. Buck, chief of bureau.)

1. 1870.
2. The diplomatic archives from 1789 to August, 1906, are contained in about 3,000 volumes, and are arranged in the following series:
 - (1) Instructions. These include all letters from the department to diplomatic representatives of the United States abroad. The series commences with January 23, 1701, although earlier letters, to United States representatives in France, Morocco, Great Britain, Netherlands, and Spain, are contained in the volumes of Foreign Letters in the Bureau of Rolls and Library.
 - (2) Dispatches.
 - (3) Notes from the department.
 - (4) Notes to the department.

For details see Guide to the Archives of the Government of the United States in Washington, by Van Tyne and Leland, second edition, published by the Carnegie Institution, 1907.

3. The volumes of diplomatic papers in the Bureau of Indexes and Archives are listed in an inventory book, in which new volumes are entered when bound. This inventory gives the numbers on the manuscript volumes, showing which volumes are duplicates of others; it also gives the dates of beginning and ending of the volumes, but in many cases, especially in dispatches, these dates are not early enough or late enough, as the case may be. The reason for this discrepancy in dates is usually the fact that the letters written before the minister or agent reached his post, and those written after leaving it, are not included in the dates given. In some cases at the end of a volume are found

letters written by a former diplomatic officer many years after the termination of his mission. Besides the list of volumes of Dispatches, Notes to the Department, Instructions, and Notes from the Department, this inventory contains lists of volumes of Circulars, of Consular Instructions and Consular Dispatches, and of volumes pertaining to Consular Clerks, Foreign Consuls in the United States, and Special Agents.

By the help of this inventory volumes can usually be located readily. The system of arrangement of books is comparatively simple, and in almost all the books the manuscripts are bound in chronological order, the most noteworthy exception being that inclosures are bound after the letter in which they were inclosed, though naturally preceding it in date. The records are, on the whole, in excellent condition, though some of the older papers are considerably discolored, or are brittle and breaking at the edges, thus making the reading of them difficult for the investigator. The handwriting of many of the earlier papers is hard to decipher, even when the ink has not faded. Some of the press copies are at present almost illegible.

The arrangement in earlier years is in some ways perplexing, and sometimes important documents are not to be found. It is no unusual thing to find that dispatches of certain numbers are not in the archives, and this in spite of the fact that sometimes as high as five copies of one paper were sent by as many different ships. It is interesting to note how many copies of the original number were received, and to compare the dates of sending and of receipt. About 1831 a definite system was adopted. The records since that time are well arranged, and the system is easily understood; the records since 1831 are also more nearly complete, due to a great extent to improvements in navigation, but due also to careful supervision. Duplicates no longer appear, and on the other hand there are no dispatches missing, as is the case in the earlier volumes. Evidently about that time our ministers ceased to send duplicate and triplicate dispatches, while the department made arrangements to get copies of documents that for any reason went astray.

6. See answer to corresponding question under Rolls and Library.

DEPARTMENT OF STATE: BUREAU OF ROLLS AND LIBRARY.

(Officer reporting: William McNeil, chief of bureau.)

1. 1882.

2. The archives of the bureau consist of the Declaration of Independence, laws, treaties, proclamations, executive orders and announcements, the proceedings of international commissions, documents relating to the Constitution, territorial papers, and a large body of miscellaneous material. Within the last few years several of the most valuable collections in the bureau have been removed.

3. The library, which is a branch of this bureau, is rich in historical and biographical works, the law of nations, and travels, and is open to persons interested during office hours. A detailed catalogue is found in the Guide to the Archives of the Government of the United States in Washington, by Van Tyne and Leland, second edition, published by the Carnegie Institution, 1907, pages 33-54.

6. The library is open between the hours of 9 a. m. and 4 p. m. It is for the official use of the department. When not required for that purpose it may be enjoyed by persons attached to the department and to the diplomatic corps in Washington, but by no others without express permission from the Secretary, an Assistant Secretary, or the chief of the Bureau of Rolls and Library.

The special rules governing its use are as follows:

- I. Persons to whom the privilege of consulting the manuscript archives of the Department of State is granted can exercise the permission only subject to the convenience of the department and the uninterrupted transaction of its business.
- II. No manuscript shall, at any time, be taken out of the department except by order in writing of the Secretary or an Assistant Secretary.
- III. No manuscript shall be taken out of the Bureau of Rolls and Library, into any room of the department, until a receipt in form and descriptive of the paper or volume be signed by the official taking the same and delivered to the chief of the bureau, or, in his absence, to the person in charge.
- IV. No manuscript shall be detained from its place on the shelves of the Bureau of Rolls and Library after 4 p. m. of the day it shall have been taken; and no manuscript shall be taken from its place, on the shelves by any others than the clerks in charge, except by special arrangement in exceptional circumstances.
- V. The use of the indexes in the room in which the old archives are deposited is not permitted except through the clerks in charge.
- VI. The privilege of consulting the manuscript archives does not include the use of the library. The latter privilege must be independently asked of the chief of the Bureau of Rolls and Library.

TREASURY DEPARTMENT: PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

(Officer reporting: W. Wyman, Surgeon-General of Public Health and Marine-Hospital Service.)

1. The Hygienic Laboratory of the Public Health and Marine-Hospital Service was established in New York, at the Marine Hospital on Staten Island, August, 1887. It was transferred to Washington, with quarters in the Butler Building, June 17, 1891, and a new laboratory building, located in Washington, was authorized by act of Congress, March 3, 1901. An extensive addition to this building was authorized by Congress in 1907.

2. Research work of a laboratory character, with special reference to problems affecting the public health, prior to the year 1908, have included advanced studies in bacteriology, serum therapy, pathology, chemistry, medical zoology, and pharmacology. The direction which the advanced studies have taken is indicated from the following list of publications, which have appeared as Hygienic Laboratory Bulletins since 1900. Those numbers to which an asterisk is prefixed are out of print.

- * No. 1.—Preliminary note on the viability of the *Bacillus pestis*. By M. J. Rosenau.
 - No. 2.—Formalin disinfection of baggage without apparatus. By M. J. Rosenau.
 - * No. 3.—Sulphur dioxide as a germicidal agent. By H. D. Geddings.
 - No. 4.—Viability of the *Bacillus pestis*. By M. J. Rosenau.
 - No. 5.—An investigation of a pathogenic microbe (*B. typhi murium* Danysz) applied to the destruction of rats. By M. J. Rosenau.
 - * No. 6.—Disinfection against mosquitoes with formaldehyde and sulphur dioxide. By M. J. Rosenau.
 - No. 7.—Laboratory technique: Ring test for indol, by S. B. Grubbs and Edward Francis; Collodion sacs, by S. B. Grubbs and Edward Francis; Microphotography with simple apparatus, by H. E. Parker.
- By act of Congress approved July 1, 1902, the name of the "United States Marine Hospital Service" was changed to the "Public Health and Marine-Hospital Service of the United States," and three divisions were added to the Hygienic Laboratory. Since the change of name of the service the bulletins of the Hygienic Laboratory have been continued in the same numerical order, as follows:
- * No. 8.—Laboratory course in pathology and bacteriology. By M. J. Rosenau. (Revised edition March, 1904.)

- *No. 9.—Presence of tetanus in commercial gelatin. By John F. Anderson.
- No. 10.—Report upon the prevalence and geographic distribution of hookworm disease (uncinariasis or ancylostomiasis) in the United States. By Ch. Wardell Stiles.
- *No. 11.—An experimental investigation of *Trypanosoma leicisi*. By Edward Francis.
- *No. 12.—The bacteriological impurities of vaccine virus; an experimental study. By M. J. Rosenau.
- *No. 13.—A statistical study of the intestinal parasites of 500 white male patients at the United States Government Hospital for the Insane; by Philip E. Garrison, Brayton H. Ransom, and Earle C. Stevenson. A parasitic roundworm (*A. momeris culicis* n. g., n. sp.) in American mosquitoes (*Culex sollicitans*); by Ch. Wardell Stiles. The type species of the cestode genus *Hymenolepis*; by Ch. Wardell Stiles.
- No. 14.—Spotted fever (tick fever) of the Rocky Mountains; a new disease. By John F. Anderson.
- No. 15.—Inefficiency of ferrous sulphate as an antiseptic and germicide. By Allan J. McLaughlin.
- *No. 16.—The antiseptic and germicidal properties of glycerin. By M. J. Rosenau.
- *No. 17.—Illustrated key to the trematode parasites of man. By Ch. Wardell Stiles.
- *No. 18.—An account of the tapeworms of the genus *Hymenolepis* parasitic in man, including reports of several new cases of the dwarf tapeworm (*H. nana*) in the United States. By Brayton H. Ransom.
- *No. 19.—A method for inoculating animals with precise amounts. By M. J. Rosenau.
- *No. 20.—A zoological investigation into the cause, transmission, and source of Rocky Mountain "spotted fever." By Ch. Wardell Stiles.
- No. 21.—The immunity unit for standardizing diphtheria antitoxin (based on Ehrlich's normal serum). Official standard prepared under the act approved July 1, 1902. By M. J. Rosenau.
- *No. 22.—Chloride of zinc as a deodorant, antiseptic, and germicide. By T. B. McClintic.
- *No. 23.—Changes in the Pharmacopœia of the United States of America. Eighth Biennial Revision. By Reid Hunt and Murray Galt Motter.
- No. 24.—The International Code of Zoological Nomenclature as applied to medicine. By Ch. Wardell Stiles.
- No. 25.—Illustrated key to the cestode parasites of man. By Ch. Wardell Stiles.
- No. 26.—On the stability of the oxidases and their conduct toward various reagents. The conduct of phenolphthalein in the animal organism. A test for saccharin, and a simple method of distinguishing between cumarin and vanillin. The toxicity of ozone and other oxidizing agents to lipase. The influence of chemical constitution on the lipolytic hydrolysis of etheral salts. By J. H. Kastle.
- No. 27.—The limitations of formaldehyde gas as a disinfectant with special reference to ear sanitation. By Thomas B. McClintic.
- No. 28.—A statistical study of the prevalence of intestinal worms in man. By Ch. Wardell Stiles and Philip E. Garrison.
- *No. 29.—A study of the cause of sudden death following the injection of horse serum. By M. J. Rosenau and John F. Anderson.
- No. 30.—I. Maternal transmission of immunity to diphtheria toxine. II. Maternal transmission of immunity to diphtheria toxine and hypersusceptibility to horse serum in the same animal. By John F. Anderson.
- No. 31.—Variations in the peroxidase activity of the blood in health and disease. By Joseph H. Kastle and Harold L. Amoss.
- No. 32.—A stomach lesion in guinea pigs caused by diphtheria toxine and its bearing upon experimental gastric ulcer. By M. J. Rosenau and John F. Anderson.
- No. 33.—Studies in experimental alcoholism. By Reid Hunt.
- No. 34.—I. *Agamafilaria georgiana* n. sp., an apparently new roundworm parasite from the ankle of a negro. II. The zoological characters of the roundworm genus *Filaria* Mueller, 1787. III. Three new American cases of infection of man with horsehair worms (species *Paragordius varius*), with summary of all cases reported to date. By Ch. Wardell Stiles.
- No. 35.—Report on the origin and prevalence of typhoid fever in the District of Columbia. By M. J. Rosenau, L. L. Lumsden, and Joseph H. Kastle. (Including articles contributed by Ch. Wardell Stiles, Joseph Goldberger, and A. M. Stimson.)
- No. 36.—Further studies upon hypersusceptibility and immunity. By M. J. Rosenau and John F. Anderson.
- No. 37.—Index-catalogue of medical and veterinary zoology. Subjects: Trematoda and trematode diseases. By Ch. Wardell Stiles and Albert Hassall.
- No. 38.—The influence of antitoxin upon post-diphtheritic paralysis. By M. J. Rosenau and John F. Anderson.
- No. 39.—The antiseptic and germicidal properties of solutions of formaldehyde and their action upon toxines. By John F. Anderson.
- No. 40.—Miscellaneous zoological papers. By Ch. Wardell Stiles and Joseph Goldberger.
- No. 41.—Milk and its relation to the public health. By various authors.
- No. 42.—The thermal death points of pathogenic micro-organisms in milk. By M. J. Rosenau.
- No. 43.—The standardization of tetanus antitoxin. An American unit established under authority of the act of July 1, 1902. By M. J. Rosenau and John F. Anderson.

3. (a) The Public Health and Marine-Hospital Bureau and its Hygienic Laboratory have small reference libraries of about 3,000 volumes each.

(b) The laboratory is well equipped to carry on experimental work in bacteriology, pathology, chemistry, pharmacology, biology, zoology, and other problems pertaining to the public health.

(c) A course of practical instruction in bacteriology, epidemiology, serum therapy, disinfection, quarantine, vital statistics, sanitary analysis, etc., is given to student officers of the service and to health officers.

(d) The laboratory force may spend extra hours in research work, and have occasionally been promoted from clerical or routine work into advanced problems.

(e) Student assistants are sometimes appointed, who devote their whole time during official hours to the work of the laboratory, but pursue collegiate studies at one of the local institutions before 9 o'clock or after half past 4.

(f) The facilities of the Hygienic Laboratory for other persons than those actually engaged in the work are limited, and have been accorded only to health officials upon the request of state and municipal health authorities.

4. During the year 1908 four officers of the service were given the prescribed course outlined above. One health officer was afforded the facilities of the laboratory for special study in typhoid fever.

5. The advantages of the Hygienic Laboratory to health officers are limited by the present congested conditions of the small building. The addition now under construction will relieve the congestion, but will be extensive enough to entertain only a few extra workers.

6. Student officers and others to whom the facilities of the Hygienic Laboratory are offered must comply with the regulations of the Public Health and Marine-Hospital Service. Health officials only are admitted, and these upon the request of state and municipal health authorities. At present the facilities of the laboratory do not permit more than five or six students at one time.

DEPARTMENT OF JUSTICE: LIBRARY.

The library of the Department of Justice is made up chiefly of law treatises, law reports, statutes, and government publications, and contains but few books of a literary or scientific character. It is a working library for the use of the Department of Justice, and affords no facilities to students for advanced study and research. There is in the library no class of books not found in the Library of Congress.

WAR DEPARTMENT: LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

(Officer reporting: Walter D. McCaw, Major, Medical Corps, United States Army.)

1. The Army Medical Museum and Library of the Surgeon-General's Office was established in its present status in 1887, at which time this building, erected for its reception, was first occupied. Prior to that time the library and museum were established in Ford's old theater, Tenth street.

2. The library, which is exclusively medical, but which deals with all branches of medicine and surgery and the allied sciences, provides a reading room for the general public, with the usual facilities for supplying practically all medical books and journals which can be anywhere obtained. Under the system of indexing, both of authors and of subjects, material can be very quickly supplied.

No provision is made for teaching or training, with the exception that the library is largely used by the class of candidates for the Medical Corps, United States Army, for whom a school is conducted in the same building. When there is room, a limited number of officers of state militia are admitted to the school as students. The library is constantly used by local physicians and students. Assistance is given to all in their researches as far as can be done by the library force.

Letters are being constantly received from physicians and health officers from all parts of the United States requesting information, which is given whenever practicable, or all facilities are afforded to agents who desire to make more extensive researches on the spot.

Books are lent to libraries, scientific bodies, and institutions all over the United States. The Library of the Surgeon-General's Office is regarded as the largest and most complete collection of the kind in the world, and is so recognized in this country and in Europe.

3. The facilities for the fiscal year 1908 do not differ from those which have been afforded during previous years.

4. It is impossible to even approximate the number of visitors making use of the library. The reading room is generally full of local physicians and students, and yearly always there are two or three from other parts of the country, occasionally even from Europe, who are making special research. For these, tables in the library hall are furnished and the books kept together for them until their work is completed. The special research work done may be in any of the innumerable lines indicated by the character of the library; not only investigations of medical or surgical interest, but those pertaining to public health, medical jurisprudence, criminology, medical botany, zoology, etc., are pursued here.

5. No additional facilities will be offered for the fiscal year 1909.

6. The use of the facilities of the library is not limited to any particular type of inquirer. The visitors include all classes, from medical students at the Washington colleges to scientists of national renown, who wish to use the library. There are no student assistantships or analogous positions, and, in fact, no funds are available for the employment of any assistants outside of the regular force, which is from the classified civil service.

WAR DEPARTMENT: MUSEUM OF SURGEON-GENERAL'S OFFICE.

(Officer reporting: E. F. Russell, Captain, Medical Corps, United States Army.)

1. The Army Medical Museum and Library of the Surgeon-General's office was established in its present status in 1887, at which time this building, erected for its reception, was first occupied. Prior to that time the library and museum were established in Ford's old theater, Tenth street.

2. The museum has been open to the general public from soon after the time of its organization in 1862. In addition, physicians, and within certain limits, students, have access to the museum specimens, workrooms, and laboratories for the carrying out of special researches. Specimens are also loaned for exhibition at various expositions and congresses. No provision is made for teaching or training except in connection with the Army Medical School, which is located in the same building.

3. The museum consists of one large hall and a smaller room, in which are arranged the gross specimens of anatomy, pathology, embryology, casts, instruments, apparatus, transportation appliances, X-ray photographs, medals, weapons of war, and miscellaneous articles. There are also pathological, anatomical, and bacteriological laboratories, and X-ray and photograph rooms. All specimens, laboratories, etc., are used as far as desired by the Army Medical School, and by civil physicians and occasionally students who desire to pursue some special inquiry, so far as such inquiry does not interfere with the current work of the office.

4. So far as concerns the museum halls there are many visitors; it is impossible to state the number. No record has been kept of those who have availed themselves of the facilities offered by the gross specimens and the laboratories.

5. It is not contemplated to enlarge the scope of the facilities offered.

6. Encouragement is not given to undergraduates to pursue special inquiries, as the colleges seem the proper place to furnish such facilities. The entire museum and library building is so fully occupied that there is no spare room, and the laboratory accommodations are restricted. There are no student assistantships or analogous positions.

WAR DEPARTMENT: OFFICE OF CHIEF OF STAFF.

(Officer reporting: T. W. Jones, lieutenant colonel, General Staff, chief, Second Military Information Division, in supervisory charge War Department Library.)

1. The supervision of the War Department Library was transferred to the office of the Chief of Staff April 10, 1904.

The War Department Library was established in the last decade of the eighteenth century (Am. State papers, misc. 1: 232; Annals of Congress, 1799-1801, p. 1357).

2. Much research has been done by consulting students during the past fifteen years in historical and military subjects.

The following valuable reference works are easily accessible: American Archives (all in print); American State Papers; Journals of the Continental Congress; all the original journals of the Senate and the House of Representatives; the sheep-bound set of congressional documents and reports from the Fifteenth Congress to date; Annals of Congress; Register of Debates; Congressional Globe; Congressional Record; executive journals of the Senate; Statutes at Large; Revised Statutes; official and unofficial photographs of the civil war included in Subject Catalogue No. 5; valuable albums of the Spanish-American war prepared by the War Department, the only ones in existence outside of four private sets; a very valuable collection of newspaper clippings on the Spanish-American war in twenty large folio volumes, the only set in existence; official gazettes of Madrid, Manila, Habana, and Porto Rico in almost complete series for the last thirty years of the nineteenth century.

Twenty catalogues and finding lists have been issued by the library, including bibliographies on Texas, Mexico, and the Mexican war; state participation in the civil war, Chickamauga, and Chattanooga; military biographies and public documents of the first fourteen congresses. See also page 105 of Guide to Archives of the Government of the United States in Washington, published by the Carnegie Institution of Washington, second edition, 1907.

4. Two thousand army officers, bureau chiefs, clerks, and a few historical students outside official circles interested in military history, military science, or general history.

5. See remarks under 2.

6. The reference facilities are not limited to any class, but preference is given to consulting students from the army and the department.

No more than fifteen students can be conveniently accommodated at any one time.

WAR DEPARTMENT: BUREAU OF INSULAR AFFAIRS.

The bureau has collected quite an extensive library of publications on the insular possessions, but it would be impossible to give students and others the opportunity to use it for research and study, owing to the limited office space.

which the bureau has. The library was inaugurated for the administrative purposes of the bureau, and there is no room in the space assigned to the bureau where it would be practicable to permit persons not connected with the bureau to use the books.

NAVY DEPARTMENT: HYDROGRAPHIC OFFICE.

(Officer reporting: Charles C. Rogers, commander, United States Navy, hydrographer.)

1. 1866. Prior to 1866 the Hydrographic Office was practically connected with the United States Naval Observatory. In 1843 Lieutenant Gilliss planned an observatory and Depot of Charts. In 1812, by act of Congress, the Navy Department was reorganized, and under it the Secretary of the Navy placed the Depot of Charts and Instruments in the Bureau of Ordnance and Hydrography. In 1844 Lieutenant Maury took charge as Superintendent of the Depot and Observatory referred to in documents of that period as the Naval Observatory and Hydrographic Office, but it was not until June 21, 1866, that the Hydrographic Office, as now understood, was established.

3. A few apprentices are under instruction in this office in engraving, plate printing, and chart construction. They are engaged on the current work.

5. Admission for the use of facilities should be limited to students of engraving and drafting. Under present conditions no students could be accommodated. Facilities could be offered only by providing more room space and additional force in the Division of Chart Construction. This would require an appropriation for renting additional rooms and for paying the salaries of additional employees. The work of the office is that of chart construction, and the space and force available are hardly sufficient for the current demands.

NAVY DEPARTMENT: UNITED STATES NAVAL OBSERVATORY.

(Officer reporting: W. J. Barnette, captain, United States Navy, Superintendent Naval Observatory.)

1. 1893. Founded in 1842; began work in 1845; removed to present site in 1893. Detailed information may be found in annual reports of the Superintendent and the publications of the Naval Observatory.

2. Library offers facilities for advanced students. The 12-inch equatorial telescope is used one night per week for the instruction of schools interested in astronomy and also for the general public.

4. The approximate number of persons visiting the 12-inch telescope during the fiscal year 1908 up to May 25, 1908, was 1420. Not possible to give the number of visitors to the library.

6. Only advanced students in the sciences represented in the library, viz, theoretical and practical astronomy and theoretical and applied mathematics, would be benefited by the use of the library.

The instruction rendered to schools and others by the use of the 12-inch telescope is of a general nature.

Admission to the telescope is by card.

NAVY DEPARTMENT: UNITED STATES NAVAL MEDICAL SCHOOL.

(Officer reporting: John C. Wise, medical director, United States Navy.)

1. The United States Naval Medical School was organized under the department's order of May 27, 1902. The first session of the school was in the fall

of that year. Since 1902 the sessions have continued each year. During the years 1894, 1895, and 1896 there was a school with similar object at the United States Naval Laboratory, Brooklyn, N. Y. As a result of an insufficient number of medical officers, and later on by reason of the Spanish-American war, this school was discontinued.

2. The course is mainly to qualify officers of the Medical Corps of the navy for work in the Tropics. Consequently special attention is directed to bacteriological work in connection with tropical diseases and to medical zoology. Naval hygiene, military surgery, and instruction in naval tactics and duties of naval medical officers, including naval law, are other necessary subjects.

3. (a) The library contains about 13,000 volumes. The books are chiefly of periods covering latter half of the nineteenth century. There is a small library of recent medical works along laboratory lines.

(b) There is desk room in the bacteriological laboratory for 28 students, and for a similar number in the chemical laboratory.

(c) The instructors are members of the Medical Corps of the navy, who by reason of familiarity with service requirements are able to judge of the most advantageous lines upon which to conduct the courses.

(d) These are recruited from the Hospital Corps of the navy, and their work is along the lines of routine laboratory work.

(e) There is no provision for appointment of student assistants.

4. There were 35 junior members of the Medical Corps in the class for those just entering the naval service, which course continued from October 1, 1907, to March 31, 1908. The course for those of advanced rank commenced April 15, 1908, and will continue until June 15, 1908.

5. The course as pursued during 1908 will be continued.

6. As at present constituted only medical officers of the navy are given instruction at this school.

NAVY DEPARTMENT: LIBRARY AND NAVAL WAR RECORDS.

(Officer reporting: Charles W. Stewart, superintendent library and naval war records.)

1. (Act of June 7, 1881.) This office contains a voluminous amount of manuscript matter, as set forth in Guide to Government Archives, published by the Carnegie Institution, Washington, D. C.

This is a dual office, with two functions: (1) That of collecting and publishing the Official Records of the Union and Confederate Navies in the War of the Rebellion; (2) the library of the Navy Department. The office is also a general information bureau for naval data, and has charge of all the correspondence regarding volunteer naval officers in the civil war. A considerable amount of manuscript data regarding the personnel of the Continental Navy, transferred to the Navy Department in accordance with law, has been deposited in this office, and further transfers of this class of matter relating to the navy prior to the civil war will be deposited.

2. The official records of the office of the Secretary of the Navy may be examined under the supervision of this office (see question 1), by authorization of the Secretary of the Navy.

3. Same as heretofore, except that occasional additions of naval manuscript data are made from time to time.

(a) Library facilities are extended to persons authorized by the Secretary of the Navy.

(b) None.

(c) No supervision, but aid is extended in making searches.

(d) Excellent opportunity afforded to employees to study naval history.

(c) No provision for student assistants.

(f) Catalogues of the most important naval records are at hand, and facilities are extended for their examination.

1. The number of historical students has been two—Dr. Charles Oscar Paulin, Ph. D., of the Chicago University, author of a history of the Continental Navy; Mr. Robert W. Neeser, Fellow of Yale College, author of Statistical and Chronological History of the United States Navy, 1775-1907.

This department and its officers make constant use of the records of this office.

The volume "John Paul Jones Commemoration" was compiled in this office and published during the year under the direction of the joint committee on printing.

5. No change is contemplated in existing arrangements of this office.

6. The use of the office and the records of the department is limited to the department's officers, and persons authorized by the head of the department to make naval researches. This office develops along narrowing naval lines, and its function is to supply naval information.

The number that can be accommodated is limited, and there are no assistant-ships.

7. This office is a part of the office of the Secretary of the Navy, and under his control. It is not a part of any bureau, and its head is a civilian, a graduate of the United States Naval Academy, familiar with naval records and history.

DEPARTMENT OF THE INTERIOR: GENERAL LAND OFFICE.

The Commissioner reports that there are no facilities for the supervision and direction of students, and no special opportunities for training, "except such as are afforded by the lower grades of work performed under the direction and supervision of section and division chiefs and reviewers."

DEPARTMENT OF THE INTERIOR: PATENT OFFICE.

(Unsigned)

1. July, 1836. The office was established in 1790, and the first patent granted bore date of July 31 of that year. The reorganization of to-day was effected in 1836, as above indicated.

2. The chief facilities offered are:

(1) The Scientific Library, containing about 84,000 volumes.

(2) The classified United States patents in the preliminary search room, open to the use of the public.

(3) The Card Index to Chemical Literature, in the classification division.

3. (a) The Scientific Library is particularly complete in its collection of scientific periodicals and its technical works. It is open to the public, and contains a card catalogue of current technical literature.

Closely allied to this is the Card Index to Chemical Literature in course of preparation in the classification division, now comprising over 400,000 cards.

There have already been granted about 900,000 United States patents, which are arranged in classes and subclasses for convenience of search, and placed in the preliminary search room for the use of the public. The office uses a printed "Classification of Subjects of Invention," from which students engaged in any particular line of physical or chemical research or study can readily

ascertain which of the various classes and subclasses of patents it might be worth their while to consult. These patents will frequently give clues to the latest results and attainments in chemistry and physics, pure and applied, which do not otherwise find their way into print until a much later period.

(b) The Patent Office has no laboratory facilities to offer students.

(c) There are no students in the sense this clause seems to imply, and the assistant examiners are supervised by the principal examiners in charge of the different groups of arts and sciences arranged in classes and subclasses in the several divisions of the office, of which there are at present 41.

(d) Special opportunities are offered to the corps of Patent Office examiners for study and training in general in patent law, and in particular along the lines of the particular science or art covered by the classes assigned to them for search purposes.

(e) No provision is made for the appointment of student assistants.

(f) The field of research is about covered by the above.

4. The library is regularly used by certain members of the special corps of abstractors of the American Chemical Society engaged in preparing the publication entitled "Chemical Abstracts," particularly those engaged in abstracting foreign chemical patents.

Mr. Otis D. Swett, registrar of the George Washington University, is one of these abstractors working regularly in the library on foreign chemical patents.

Some use has heretofore been made by students of the Card Index to Chemical Literature, but not to nearly as great an extent as could be. Any students engaged in chemical or physical research work and desiring to investigate the literature of the subject or compile a bibliography, would be greatly helped by a free use of the same.

5. See answer to question 3.

6. There has been no limitation placed upon the use of the library, the card index, or the classified patents.

DEPARTMENT OF THE INTERIOR: BUREAU OF EDUCATION.

(Officer reporting: Lovtek Pierce, chief clerk.)

1. June 30, 1860.

Statistics of education were first collected by the Federal Government for the census of 1840, and each of the census reports since that date has included summarized statistics on that subject. These data, however, were published only at intervals of ten years and in condensed form; consequently there was felt, especially by educators, the need of some central agency by which information respecting education throughout the world could be collected annually and be preserved, consolidated, and properly arranged for dissemination. Pursuant to a memorial of the National Educational Association, Congress established by an act approved March 2, 1867, a department of education "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in the several States and Territories and of diffusing such information respecting the organization and management of school systems and methods of teaching as shall aid the people of the United States in the establishment and maintenance of efficient school systems and otherwise promote the cause of education."

By the act of July 28, 1868, which took effect June 30, 1869, the Department of Education was abolished and an office or Bureau of Education in the Department of the Interior was established, with the same objects and duties as were specified in the act of March, 1867.

2. Immediately after the establishment of the bureau it began the collection of statistics, reports, catalogues, and other documents from the educational systems and institutions in the several States in this country and in foreign countries, and has thus brought together, during the forty-one years of its existence, a large body of domestic and foreign educational reports, reference books, periodicals, journals, and other documents relating to the various phases of education. The library is indispensable to the working force of the bureau, and is rich in material for the student of the history and science of education. It has been the policy of the bureau from its establishment to the present time to place its library at the service of students engaged in research, and to furnish them all the assistance that could be given in the inadequate building which it occupies.

In addition to the library collections an effort was made in the earlier years of the bureau's history to gather material for a museum that should be an object lesson of educational development and advancement. This collection comprised designs for schoolhouses, desks, and school furniture; mechanical devices for instruction in industrial arts; models of objects in wood, clay, and metal, showing the advancement of pupils from rude beginnings to something of artistic finish; photographs of school and college buildings and grounds, and of groups of pupils of all grades; portraits and busts of educators and benefactors of education; together with a series of models illustrating the development of farming implements from the earliest time in our own and other nations. As increased office space was required for the office staff and for the rapidly growing library it became necessary to crowd the museum collections into gradually diminishing space until in 1906-7 all that was valuable was packed in boxes to await the time when room for its useful and proper display should be provided.

3. In the early years of the bureau's history it was the recipient of many contributions of valuable works of general literature, the most notable of these being the gift of the collection of 5,000 volumes selected for a popular library by the American Library Association and exhibited at the World's Fair in Chicago in 1893. These acquisitions and the natural growth of the library gradually overcrowded the space available and rendered a change of policy imperative. During the fiscal year 1908 all books not pertaining directly to the work of the bureau and not absolutely necessary for reference use by the office force and by other students of education were placed in other bureaus and libraries of the Government where they more appropriately belonged. This work has been practically accomplished. The collections reserved in the library of the bureau number 146,490 volumes and pamphlets and consist of works on education and closely related subjects. These are in process of being arranged for the more convenient use of students of education. In its special field it is probably the largest single collection in America, and its assemblage of American educational periodicals, state and city school reports, and college and school catalogues is perhaps the largest in existence. A list of educational periodicals currently received in the library is published in the annual report of the commissioner. The periodicals themselves are indexed.

A union catalogue of educational literature, available in the library of the bureau, the Library of Congress, and important pedagogical collections in other cities, is in course of preparation.

4. No record has been kept of the number of persons who have availed themselves of the facilities offered by the bureau in past years. Many students of education have visited the library and made use of the material filed therein for reference. In former years Prof. Herbert B. Adams, late of Johns Hopkins University; Dr. J. L. M. Curry, agent of the Peabody and Slater Funds; Dr. A.

D. Mayo, in his "Ministry of Education in the South;" and other well-known educators and students were frequent visitors and made free use of the collections.

5. These are outlined in answers to Nos. 3 and 4.

6. The conditions of admission to the use of the facilities afforded are not stringent or exclusive. Earnest students are always welcome; the library staff will cheerfully render them all needed assistance, and place at their disposal reference books, desks, and stationery. Even in the limited quarters now occupied by the bureau desk room can be given to as many as six or eight students at a time. By special agreement books may be borrowed for a limited time and used outside of the office.

DEPARTMENT OF THE INTERIOR: U. S. GEOLOGICAL SURVEY.

(Officer reporting: George Ous Smith, director.)

1. March 3, 1879. A sketch of the United States Geological Survey, giving an account of its origin and development, organization, and operations, is contained in the Survey Bulletin 227.

2. The survey has probably the largest geological library in America which is available for general use. The geological and other specimens collected by members of the survey are deposited in the National Museum, where they are open for examination.

3. There were in the library in 1904 about 50,000 bound volumes, 80,000 pamphlets, and 30,000 maps, besides many books that form parts of sets of periodicals and of proceedings of societies, museums, and congresses that have not been entered in the accession book. A rather large percentage of books received are unbound, and during the last few years the binding has not kept pace with the increase. An effort has been made to remedy this.

Under the law the library at 1330 F street, second floor, is open to the public from 9 until 2 o'clock. During these hours it is in constant use by outside students, as well as by members of the survey. The latter are permitted, in addition, to draw from the library any books, except encyclopedias and dictionaries, that are needed by them in their investigations.

4. No record is made of the number of persons availing themselves of the library.

No students have availed themselves of the facilities for advanced study and research in the office of the Geological Survey in the last sixteen years. The chief reason for this has doubtless been the crowded condition of the office of the survey, and the consequent inability of the survey to furnish the necessary facilities for such students. It is impossible to estimate the number of students who would take advantage of the library, laboratories, and collections of the survey if facilities were available, but it is probable that a considerable number of advanced students would come to Washington for study if it were generally known that the necessary facilities could be offered to them.

DEPARTMENT OF THE INTERIOR: RECLAMATION SERVICE.

(Officer reporting: F. H. Newell.)

1. The Reclamation Service was established in July, 1902. Prior to that time the work in which it was engaged was conducted by the Geological Survey, of which the Reclamation Service may be said to have been an offshoot.

2. No facilities are offered for advanced study or research. The work of the Reclamation Service is largely survey, examination, and construction of large works for the irrigation of arid lands, and up to the present time there has not been any opportunity for investigations, excepting such matters as those connected with cement or building materials. All of these details are, however, handled by the technologic branch of the Geological Survey.

3. No special facilities are offered during the year 1908. There are no libraries nor laboratory facilities, and the only opportunities for study and training are those in connection with the development of the younger assistants in the field.

4. No persons availed themselves of the facilities during the fiscal year 1908 other than the younger assistants indicated above.

5. No special facilities are offered for the fiscal year 1909.

6. No regulations have been considered concerning the conditions of admission to the use of any facilities enjoyed by the Reclamation Service.

DEPARTMENT OF THE INTERIOR: GOVERNMENT HOSPITAL FOR THE INSANE.

(Reporting officer: William A. White, Superintendent.)

1. The pathological laboratory was instituted in 1884. The psychological laboratory was instituted in 1907.

2, 3. As indicated above, the Government Hospital for the Insane maintains two laboratories, one consisting of a pathological department, in which are included pathology, clinical pathology, histopathology, and bacteriology and chemistry, and the other being a psychological laboratory. These laboratories exist solely for the study of problems associated with insanity. Specimens from the pathological laboratory of the hospital have been utilized before the medical students of the Georgetown University Medical School between the years 1885 and 1905 in instruction outside the hospital, and since the latter date mentioned these students, with those of the George Washington University Medical School, have been admitted to the laboratory at regular periods for the purpose of witnessing demonstrations and receiving instruction. In the psychological laboratory facilities have been placed at the disposal of advanced students in George Washington University. It should be understood that those who are desirous of studying the abnormal mental life may be afforded opportunity to enter these laboratories after their applications have been passed upon by the superintendent of the hospital. Each laboratory is under the charge of an officer of the hospital, both of whom are engaged constantly in research work in their special fields. In the case of the pathological laboratory the annual reports of the hospital, with some supplementary ones issued specially for the purpose, will indicate some of the work done in that department. See also the report of the hospital for 1907, page 24, outlining the creation of the psychological laboratory. The facilities of these laboratories are extended to those pursuing original investigations, to students doing graduate work, and to others whose applications may be approved by the superintendent of the hospital.

4. Dr. Hamilton Wright, of Washington, D. C., whose work was along neurological lines. Doctor Wright has been in charge of a laboratory in India.

Dr. Albert Gulbord, also of Washington, whose work has been of a general nature in the psychological laboratory. Doctor Gulbord was connected with the State Hospital for the Insane, Westboro, Mass., as assistant physician for several years.

FACILITIES FOR STUDY, ETC., IN WASHINGTON.

DEPARTMENT OF AGRICULTURE: WEATHER BUREAU.

(Officer reporting: Willis L. Moore, Chief.)

1. February 9, 1900.

Several branches of the Federal Government were engaged in meteorological work before the organization of the Weather Bureau, chief of which were the United States Lake Survey on behalf of the War Department, Commander Maury on behalf of the Navy Department, and Surgeon-General Lawson and others on behalf of the Medical Department of the Army.

2. Some years prior to 1908 advanced study in meteorology was prosecuted by a small number of students of the George Washington University. Lectures were delivered to the class by the higher officials of the bureau; in recent years, however, such lectures have been abandoned.

3. The Weather Bureau offers the use of its library to students pursuing courses in atmospheric physics or other related subjects. It also offers opportunities for studying the methods of preparing synoptic charts and their use in weather forecasting. Laboratory facilities and the supervision of students can not be provided. The library of the Weather Bureau is a highly specialized one and is the most complete of its kind in this country.

4. The studies which have been made in the Weather Bureau in the past have been confined to special students of meteorology and representatives of foreign meteorological services. A representative of the German Meteorological Service, Dr. P. Polls, of Aachen, Germany, made a systematic examination of the means and methods employed in this country in conducting its weather service. His conclusions will be found in *Der Wetterdienst und die Meteorologie in den Vereinigten Staaten Amerika und in Canada* (Berlin, 1908).

DEPARTMENT OF AGRICULTURE: BUREAU OF ANIMAL INDUSTRY.

(Officer reporting: A. D. Melvin, Chief.)

Beyond allowing access to its collections of animal parasites and pathological specimens, the bureau is not prepared to offer facilities for advanced study and research in its laboratories—pathological, biochemic, zoological, or dairy.

DEPARTMENT OF AGRICULTURE: BUREAU OF PLANT INDUSTRY.

(Officer reporting: A. E. Woods, Assistant Chief of Bureau.)

1. July 1, 1901.

2. Prior to the establishment of the Bureau of Plant Industry work was conducted in separate divisions, as follows: Divisions of Vegetable Pathology and Physiology, Botany, Agrostology, Pomology, and Gardens and Grounds. Opportunities were given to investigators in botany and mycology to work in the herbarium, and to investigators of pathology, physiology, etc., to work in the laboratories where investigations on these subjects were carried on. These investigators were required to furnish satisfactory evidence of their ability to work in the line in which they were interested, and to come to the laboratories at such time as would not interfere with government work.

3. Facilities are offered in the Plant Industry Library, where most of the important works relating to botany, horticulture, and all subjects pertaining to plants are available. Facilities can occasionally be offered to qualified investigators to work in the field and in the laboratories. The opportunities offered are intended specially for investigators in experiment stations and similar institutions who desire to work out particular problems, or familiarize themselves with methods not available in their own institutions. The laboratories are not able to undertake the training of students, but the experts in charge of the laboratories are always glad to give students suggestions and advice relative to the courses they wish to pursue, the work they desire to carry on, etc. Every opportunity is given to members of the office and laboratory forces to perfect themselves along scientific and other lines relating to their work. The experts give their time freely in assisting members of the force in order to increase their efficiency.

4. Dr. Charles Thom and Prof. L. N. Duncan have availed themselves of opportunity to carry on scientific research in plant pathology and bacteriology during the past fiscal year. Doctor Thom is a member of the staff of the Agricultural Experiment Station at Storrs, Conn. He took the degree of A. B. at Lake Forest College in 1895 and the degree of A. M. at the same college in 1897. From 1897 to 1902 he was instructor in the University of Missouri, taking the degree of Ph. D. at that institution in 1899 under Doctor Ayres. From 1902 to 1904 he was instructor in botany-mycology at Cornell University, and from 1904 up to the present time has been engaged as mycologist in cheese investigations for the Dairy Division, Bureau of Animal Industry, carrying on these investigations at the Connecticut Experiment Station. Professor Duncan is an instructor in agronomy at the Alabama Polytechnic Institute at Auburn, at which institution he was graduated. Since his graduation he has been assistant to Professor Duggar at the Agricultural College at Auburn, Ala., and also instructor at the Agricultural School at Athens, Ga.

Messrs. L. C. Brown, a seedsman of La Grange, Ill., and Professor French, assistant botanist at the New York State Experiment Station at Geneva, spent four weeks each in our Seed-Testing Laboratory during the year studying our methods of seed testing. Two seedsmen and an assistant from the Maine Experiment Station are expected to come to our Seed-Testing Laboratory this month to study our methods.

Mr. Yqu Hang Tong, B. S. A., a Chinese student at Cornell University, who has just presented to that university a thesis on rice for the degree of Master of Science in Agriculture, spent several months during the past winter in our grain laboratories.

5. The same facilities as above are offered for 1909.

6. Opportunities are offered only to investigators thoroughly prepared for their work. No statement can be made as to the number of investigators who can be given facilities for work in the bureau, as the opportunities vary from time to time, but usually one or two could be provided for in each of the thirty or more laboratories in the bureau. All appointments to regular positions in this bureau are made through the Civil Service Commission. For the lower and medium-grade scientific positions appointments are made from the eligible registers of laboratory assistants and scientific assistants, and for the higher positions from registers made up from special examinations. The list of the examinations held by the Civil Service Commission for scientific positions are given in the Manual of the Civil Service Commission.

FACILITIES FOR STUDY, ETC., IN WASHINGTON.

DEPARTMENT OF AGRICULTURE: FOREST SERVICE.

(Officer reporting: Raphael Zon, Chief Office of Studies.)

1. February 1, 1905.

2. The only position in the service which has been open to those whose training in forestry was incomplete was that of forest student. It was created in order to afford young men who had determined to make forestry their profession an opportunity to become familiar with the methods of the service in the field and in the office. The work as a forest student did not constitute in itself a stepping-stone to higher positions in the Forest Service, but formed a part only of the training useful in fitting a man for the profession of forestry. It was the policy of the service to retain a man as forest student only long enough for him to gain full advantage from the opportunities for field and office work which the position afforded. It was expected that he would continue his training elsewhere. This policy was in force for about seven years, up to about 1906.

3. With the change in the character of the work of the Forest Service, brought about by charging it with the administration of the National Forests, the policy of appointing forest students has been discontinued. The solution of the problems which now present themselves demands more intensive study than in the beginning and requires in every detail the attention of technically trained men.

6. The preparation for forestry as a profession may best begin with a college or university course, in which the student should acquire some knowledge of the auxiliary subjects necessary in forestry. Of these, the more important are geology, physical geography, mineralogy, chemistry, botany—in particular that branch which deals with the anatomy, physiology, and life history of plants—and pure and applied mathematics, including a practical understanding of the principles of surveying. The student who, in his college course, can include physics, meteorology, and political economy will be better equipped to take up his technical forest studies.

Graduation at a college or university should be followed by a full course at a school of instruction in professional forestry, of which there are now several in this country.

See Forest Service Circular No. 23, page 3.

DEPARTMENT OF AGRICULTURE: BUREAU OF CHEMISTRY.

(Officer reporting: W. D. Higelow, Assistant Chief.)

-1. July 1, 1901.

Much of the work now conducted by the Bureau of Chemistry was previously conducted by the Division of Chemistry, which was changed to the Bureau of Chemistry on the date mentioned above. The Division of Chemistry was created on the appointment of the first chemist of the department in 1862.

2. The various lines of work conducted by the Bureau of Chemistry are given in Circular 14 of the bureau. The facilities include the well-equipped laboratory and all field resources that are necessary.

3. (a) Library facilities are of the best. Our library includes practically all treatises desired by the bureau.

(b) Laboratory facilities are somewhat inadequate at the present time, owing to the great increase in the number of employees. New space has been secured.

however, and the facilities will be greatly enlarged during the next few weeks. The laboratories will then include about 40,000 square feet of floor space, with ample facilities of all kinds.

(c) No students as such are in the bureau. The workers are confined to the regular employees.

(d) The majority of the scientific employees of the bureau specialize sooner or later, and every opportunity is given them to master their specialty as completely as possible. Before they begin to specialize, however, it is desired that they receive broad experience, and to this end the nature of their work is occasionally changed.

(e) There is no provision for the appointment of student assistants, as such have been found to interfere seriously with the work of the bureau.

4. There are in the Bureau of Chemistry in Washington about 90 scientific employees. As stated above, no opportunity is given to others than regular employees.

5. As stated above, no opportunities are offered except to regular employees of the bureau. To young men who have completed a thorough course in chemistry and who desire experience in a large laboratory, excellent opportunities are offered.

6. Regular civil-service examinations are given from time to time. The number of eligibles on the lists established from such examinations is never great, and frequently is insufficient for the needs of the bureau. Applicants for such examinations should have followed a course leading to the degree of Bachelor of Science or its equivalent, and their course in chemistry should have been not less than a three-year course of nine recitation hours per week, three laboratory hours counting as one recitation hour. Appointments for research work alone are not made. All appointees are expected to do either research or routine work as the needs of the service may require.

DEPARTMENT OF AGRICULTURE: BUREAU OF SOILS.

(Officer reporting: Milton Whitney, Chief.)

1. The Bureau of Soils was organized in 1901. Originally this bureau was created as a separate Division of Agriculture Soils in the Weather Bureau. In 1894 it was made a separate division of the Department of Agriculture, and in 1901, by act of Congress, it was recognized as a bureau.

2. The bureau, both in its field parties and in its laboratories, has always welcomed the presence of anyone interested in the special lines of work being carried on, and has frequently made opportunities for such parties to avail themselves of the privilege of working in the laboratories for limited periods of time, or for short excursions with some one or more of the field parties.

3. (a) The library facilities are excellent for certain types of physical-chemical, biological, and agricultural sciences.

(b) The laboratory facilities in this bureau are very good for physical-chemical and physiological investigations of soils, minerals, fertilizers—organic as well as inorganic—and plants.

(c) There is no direct supervision of the voluntary workers in this bureau; they are usually associated with some one of the experts for such assistance and guidance as these experts can give them.

(d) Opportunities are fair for the transfer of clerical employees to field parties when the employee shows any particular aptitude.

(e) No provision.

f) During the year 1908 short courses of lectures were offered by members of the scientific staff of the bureau in the city of Washington and at the following-named institutions: Michigan State Agricultural College, Lansing, Mich.; Ohio State University, Columbus, Ohio; State College, Pennsylvania; Cornell University, Ithaca, N. Y.; West Virginia University, Morgantown, W. Va.; Clemson College, Clemson, S. C.; University of Georgia, Athens, Ga.; University of Mississippi, University, Miss.; College of Agriculture and Mechanical Arts, Baton Rouge, La.; University of Kentucky, Lexington, Ky.; University of Tennessee, Knoxville, Tenn.; Women's College, Baltimore, Md.; Brown University, Providence, R. I.; Johns Hopkins University, Baltimore, Md.; Syracuse University, Syracuse, N. Y.; Board of Trade, Fort Wayne, Ind. While carrying on special investigations experts from the bureau have given courses at the State College, Pennsylvania.

4. During the year there have been probably as many as fifty persons who have visited the bureau for periods of from one day to six weeks, in order to familiarize themselves with the special methods, apparatus, and laboratory and field procedure employed by the bureau officials in their investigations and the scientific and practical lines being developed by the bureau employees. Among these were members of the faculties of American and foreign universities who were especially interested in the scientific investigations being conducted in the bureau; members of the staffs of agricultural experiment stations, who have been especially interested in the methods employed in the bureau; attachés of foreign governmental institutions interested in the methods employed by the bureau; graduate students interested in special investigations which touched upon or involved special apparatus and methods devised or employed by the scientific staff of this bureau. All persons cited above have been of the grade of advanced graduate students or trained investigators.

5. The bureau will welcome, as heretofore, properly trained men who wish to avail themselves of the opportunity of studying the special investigations and the methods employed by the bureau. No provision, however, is made or anticipated for regular student work, and the bureau is not prepared to employ persons coming with the idea of spending their time as students, either in part or in whole, but only those who are required by the exigency of the work arising in its normal and regular development.

6. There are no special regulations or conditions, but anyone properly qualified who wishes to avail himself of the facilities of the bureau will be welcomed.

DEPARTMENT OF AGRICULTURE: BUREAU OF ENTOMOLOGY.

(Officer reporting: L. O. Howard, Chief.)

1. July 1, 1904.

2. No effort whatever has been made to exploit the facilities for advanced study and research for those outside of the service of the bureau. The laboratories and offices are well filled with paid assistants, and it is difficult to find desk room for the field men, when in the winter time some of them come to Washington for consultation and to work upon their field notes and reports. Nevertheless, by a special arrangement in advance, in a number of instances post-graduate students and officers of foreign governments have been permitted to pursue studies in economic entomology at the bureau, either during summer vacations or for longer periods. They have been given no regular instruction, but have simply been given desk room and told to use the library and collections, to watch the investigations going on, and to gain all information desired by asking questions in so far as not to interrupt the official work of the bureau.

3. Nothing more has been offered during the fiscal year of 1908 than previously and as indicated in answer to the preceding question. The library is good; the laboratory facilities are cramped, even for regular assistants; there are no facilities for the direction and supervision of students. There are special opportunities for study and training offered the members of the office save only in the line in which they are engaged, except so far as library and collections assist them in broadening their information.

4. Only two persons have stayed in Washington for any length of time during the last fiscal year, engaged in work of this character. Prof. M. J. Riviera, an official of the department of agriculture of Chile, spent a number of months in Washington studying the methods of the bureau. Mr. George G. Ainslie, a graduate of the University of Minnesota, has spent a number of months without pay doing work of the same character.

5. Special arrangements are made for the fiscal year 1909, and, in fact, office facilities will be rather more crowded than during the present fiscal year. No applications have been made to the bureau, except by advanced students wishing summer vacation work. Occasionally, when the bureau has need of such assistants, one or more of these men are appointed, but as a rule such men are employed in field investigations in connection with one or another of the numerous field parties of the bureau. Occasionally one is employed for the summer months simply as a preparator, but these cases are rare and only in case of a temporary emergency.

6. The bureau will always do what it can for officers of foreign governments, for officers of state experiment stations, or instructors in colleges and universities, in the way of affording them an opportunity to study the methods used by the bureau, and will always give them free use of the library and collections. This is the preferred class of men welcomed here. Post-graduate students can not be cared for except in unusual cases, on account of the crowding of the laboratory rooms by paid assistants.

DEPARTMENT OF AGRICULTURE: BIOLOGICAL SURVEY.

(Officer reporting: H. W. Henshaw, administrative assistant.)

1. Established as Division of Economic Ornithology and Mammalogy in 1885; undertook biological survey work in 1889; name changed to Biological Survey in 1896.

2. In furtherance of its objects the Biological Survey has accumulated large and valuable collections of birds, mammals, and plants, which are now stored in the National Museum. These specimens are collected with a view to the light they shed on problems of geographic distribution, as well as for the purpose of determining the food habits of the several species. They furnish the data upon which many of the publications of the survey are based, and from time to time, as occasion arises, groups are studied in their more strictly scientific aspects, and the results published for the information of the public. Specimens are often received from colleges, museums, students, farmers, and others for comparison with this material, with the request that they be named and classified. The survey collections are so stored, labeled, and arranged as to be available for study by scientific investigators and by properly accredited individuals.

3. The Biological Survey library consists of books, periodicals, and reports of scientific societies, bought or received in exchange for the survey's publications. Though small, the library offers excellent facilities for study, especially on topics connected with the economic relations of birds and mammals, game pro-

tection, and the geographic distribution of animals and plants. Every opportunity for consultation is offered to students and others interested in the subjects to which it pertains.

An important part of the work of the survey is the examination of the contents of stomachs of birds for the purpose of determining the exact nature of their food—whether the insects eaten are beneficial or injurious, and whether the seeds and other parts of plants are of noxious or valuable kinds. To aid in this work a large and valuable seed collection has been formed. This is carefully labeled and arranged so as to be immediately available for the identification of seeds found in birds' stomachs. A representative collection of insects also, consisting of the species more commonly eaten by birds, greatly aids in the labor of identification. These collections are available for study and consultation. The doors of the laboratory are always open also to those who desire to study methods of work.

5. It is believed that the investigations conducted in the laboratory of the survey are more thorough and cover a wider field than any similar investigations elsewhere undertaken in any part of the world. A limited number of advanced students might be trained for future independent work in this field, which is of constantly growing importance.

DEPARTMENT OF AGRICULTURE: OFFICE OF EXPERIMENT STATIONS.

(Office reporting: C. E. Langworthy, Acting Director.)

1. 1888.

The work of the Office of Experiment Stations includes: (1) Relations with American and foreign institutions for agricultural research, together with the supervision of expenditures of the agricultural experiment stations in the United States; (2) the preparation of publications, mainly based on those of the experiment stations; (3) the management of the experiment stations in Alaska, Hawaii, and Porto Rico; (4) relations with agricultural colleges and schools, farmers' institutes, and kindred organizations at home and abroad, and the general promotion of agricultural education in the United States; (5) investigations on the nutritive value of different agricultural products used as human food; (6) irrigation investigations; and (7) drainage investigations. The last two lines of work (6 and 7) involve cooperation with the agricultural colleges and experiment stations.

This office represents the department in its relations with the agricultural colleges established under the acts of Congress of July 2, 1862, and August 30, 1890. It collates and publishes information regarding the organization, equipment, resources, and courses of study of agricultural colleges and schools in this and other countries. It promotes the general interests of agricultural education throughout the United States, including especially the introduction of instruction in agriculture into secondary and elementary schools.

2. In carrying on the various lines of work outlined above, the office has prepared and accumulated reports, maps, charts, photographs, card indexes, and other valuable information concerning the institutions for agricultural education and research in this country and abroad, all of which has been available to those wishing to study along these lines. At different times between 1899 and 1903 this office, as well as other divisions and bureaus of the Department of Agriculture, employed graduates of agricultural colleges as "scientific aids" at nominal salaries, with the understanding that the young men thus employed would be permitted to devote a part of their time to graduate study. The position of "scientific aid" has been discontinued. In connection with the nutri-

the investigations at Middletown, Conn., students have been given opportunities for laboratory practice with the respiration calorimeter and for making dietary studies in public institutions.

3. The Office of Experiment Stations has a large number of text-books and manuals written by teachers and investigators in agricultural colleges and experiment stations, and it also has access to the splendid library of the department. It employs a librarian and an assistant, who gladly assist the office staff and visiting workers along agricultural lines to assemble the literature of any subject. The office has also accumulated a vast amount of statistical information, historical notes, card-index references, and other published and unpublished material concerning irrigation, drainage, nutrition, and agricultural institutions in this country and abroad, which is not easily accessible elsewhere. Visiting students will be given every possible opportunity to use this material, and will be assisted and directed in their researches so far as the facilities of the office will permit.

All members of the scientific force of the office are given opportunities and are encouraged to pursue lines of study which will afford them training and contribute to the fund of knowledge concerning agricultural education and research. Special opportunities for study are afforded to members of the engineering force during several months in the year when they are in the Washington office. This takes the form of special advice regarding drainage literature in books and current periodicals, and frequent meetings of the engineering force at which topics under investigation, in connection with projects upon which the office is working, are discussed and explained in detail.

There is no regular provision for the appointment of student assistants. One graduate student, a candidate for the degree of Doctor of Philosophy at Columbia University, was appointed collaborator in 1908 in order that he might have better opportunities to study the problems of secondary agricultural education and in order that this office might come into possession of information collected by him which would be of interest and value to the general public.

4. Twelve members of the engineering force, one graduate student (collaborator), and several others who were here for a few days.

5. No material change in facilities is contemplated for 1909, except that the recent transfer of the respiration calorimeter and accessory apparatus from Middletown, Conn., to this city will afford an opportunity here to study questions concerned with the nutritive value of different foods, their use in the body, and related topics, while the large amount of bibliographical and experimental data now on hand is of value to students of dietetics with reference to individual, family, and institution food problems.

6. Officers, teachers, and investigators from state agricultural colleges and experiment stations and other educational institutions will be welcomed at any time and given every available facility for study and research. Occasionally a graduate student can be assisted, as in the case of the collaborator mentioned under paragraph 3, but no salaried positions are regularly open to such students.

DEPARTMENT OF AGRICULTURE: OFFICE OF PUBLIC ROADS.

(Officer reporting: A. S. Cushman, Acting Director.)

1. March 3, 1893. The clause in the agricultural appropriation bill of the above date empowered the Secretary of Agriculture to make inquiries in regard to systems of road management throughout the United States, make investiga-

tions in regard to the best methods of road making, etc. The work of the office has been gradually enlarged, and the division of tests, established in 1900 for the purpose of testing the physical and chemical properties of road materials, was consolidated with it July 1, 1905, to form the office of public roads. An educational campaign for better roads was carried on by the National League for Good Roads previous to the establishment of this office (see Bulletin 14, Office of Experiment Stations, and National League for Good Roads Proceedings, October 20 and 21, 1892).

2. Owing to the demand for skilled highway engineers and the insufficient number available, the office determined in 1905 to provide instruction of a practical character in this branch of engineering. Since that year a limited number of graduate civil engineers have been appointed annually to the position of civil engineer student after having passed competitive examinations. These men are employed for a period of one year at \$50 per month and expenses while on field duty, during which time they receive practical training and instruction not only in laboratory work and methods of road administration, but also in actual road building in various parts of the country. At the end of this period they are eligible for promotion without further examination.

3. The office has well-equipped physical laboratories, which test the physical properties of road materials submitted. Chemical and petrographic analyses are also made in many cases.

The library of the office contains standard works on highway construction and civil engineering, files of state highway commission reports and bulletins, state geological survey reports, and works on chemistry, physics, and geology for use in the laboratories. About fifty domestic and foreign technical and trade journals are regularly received.

The chemical laboratory is equipped for the analysis of road-making rocks, sands, and cements, and for the examination of oils, tars, and asphalts. The physical laboratory is equipped for mechanical and physical tests of road materials to determine hardness, toughness, cementation-value, tensile strength, and resistance to compression.

The civil engineer students are under the immediate direction of the chief engineer when engaged in field work, and under the assistant director when engaged in laboratory work. During the months of January and February, 1908, when there was little field work in progress, courses of lectures were given by members of the office staff. Each student's time was divided into lecture hours and laboratory work. The students were then sent into the field for actual work on roads.

All branches of the work of the office are closely correlated, and members of the staff are given opportunities for study, described under sections a, b, and c.

In special instances, where instruction in the road-material laboratory and special courses in highway engineering are desired, there is opportunity for the appointment of a few students for laboratory and field instruction during the summer months.

It is the policy of this office to cooperate closely with colleges with a view to introducing, wherever practicable, a course in highway engineering, and where this has already been done, assist in developing and improving such course. To this end lectures are given by members of the office staff in colleges, and suggestions furnished in regard to the curricula necessary.

4. The following civil engineer students were appointed during the fiscal year 1908: Andrew P. Anderson, Bozeman, Mont., graduate Montana Agricultural College; Lucius D. Barrows, Orono, Me., graduate University of Maine; Randolph Martin, Indiana, graduate Purdue University; Charles R. Thomas,

jr., Newbern, N. C., undergraduate University of North Carolina; and Raymond E. Toms, Frederick, Md., graduate Cornell University.

The following studied the work of the testing laboratory: Prof. W. R. Hoag, of the University of Minnesota; Capt. Harry A. Eaton, U. S. Army, of the University of West Virginia.

Prof. H. L. Bowlby, of the University of Washington, was employed for field engineering during the summer of 1907.

5. Facilities for the fiscal year 1909 will be of the same character as those offered for the fiscal year 1908.

6. The civil engineer students are recruited from the results of annual civil-service examinations. Applications will be received only from graduates in civil engineering and from graduating students. They must be 20 years of age or over on the date of the examination. The examination consists of the subjects mentioned below, weighted as indicated:

	Weights.
1. Pure mathematics	20
2. Theoretical and applied mechanics	20
3. Construction and use of instruments (including field work)	20
4. Materials of construction	20
5. Elements of construction.	20
Total	100

No provision has been made for instruction other than that described above, and the number of civil engineer students is limited by the amount of the annual appropriation available for this purpose. No student assistants are appointed under the present arrangements.

Graduate students in engineering from recognized colleges and universities are admitted to pursue special lines of investigation when the Director is satisfied that they will do efficient work.

DEPARTMENT OF AGRICULTURE: LIBRARY.

The library of the Department of Agriculture has notable collections of books, periodicals, and society publications on agriculture and related sciences. These collections are open to the public for reference use from 9 a. m. to 4.30 p. m. on secular days.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF CORPORATIONS.

(Officer reporting: Herbert Knox Smith, Commissioner.)

The information collected by the Bureau of Corporations is so largely of a confidential character, until published by order of the President, that it is impracticable to afford facilities to students for study or research. The library of the bureau is very small, consisting mainly of law books, statutes, and official documents, with a few trade papers, nearly all of which are more readily accessible to students elsewhere, and the bureau has no available office room for the accommodation of students desiring to use its library. The published reports of the bureau, however, contain much exact information of ultimate

value to students of industrial conditions. The reports thus far published, aside from the annual reports of the Commissioner, are on the following subjects:

1. The Beef Industry. March 3, 1905.
2. Transportation of Petroleum. May 2, 1906.
3. The Petroleum Industry: Part I. Position of the Standard Oil Company in the Petroleum Industry. May 20, 1907. Part II. Prices and Profits. August 5, 1907.
4. Cotton Exchanges: Part I. Methods of Establishing Grade Differences for Future Contracts. May 4, 1908.

The bureau has also furnished the Inland Waterways Commission a large amount of matter to be published in the appendices to the commission's report.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF MANUFACTURES.

(Officer reporting: John M. Carson, Chief.)

1. February 14, 1903. This bureau, however, was not organized until February 1, 1905.

2. Numerous reports on special subjects, mainly commercial and industrial, relating to conditions in foreign countries, have been published. Many of these are out of print. Prior to 1903 these reports, also "Commercial Relations of the United States" (annual), Daily Consular Reports, and Monthly Consular Reports were published by the Department of State.

3. The library is confined to bureau publications and other public documents concerning commerce and industry, and laws and regulations of foreign countries relating to customs tariffs and cognate subjects.

Persons appointed to the consular service, before proceeding to their consulates, and consular officers returning home on leave of absence, might be assigned temporarily to this bureau for duty and practical instruction in the commercial needs of the country, as presented in the correspondence of representative manufacturers and merchants engaged in foreign trade, and in the preparation of consular reports. In case of those newly appointed the service with this bureau should be for a period of two weeks.

5. Facilities offered for the year 1909 will be the same as those at present.

6. Students calling at the Bureau of Manufactures will be permitted to consult the books and documents relating to customs tariffs of foreign countries and to commercial conditions throughout the world. They could also see the methods of operation in the bureau by which reports from the United States consular officers in foreign countries are compiled and edited, and the methods of filing information relating to commercial and trade opportunities in foreign countries, all of which information is published and distributed gratis to people who are interested.

Owing to the lack of commodious quarters, the space accommodations of the bureau are extremely limited, so that it would be impossible to accommodate more than one student at a time if he desired to spend the greater part of the day in the bureau.

7. Numerous samples of goods (mostly textiles) manufactured in foreign countries have been collected by consular officers and special agents; also photographs showing machinery, methods, etc. These are sent to interested parties making application and to textile schools. No facilities are offered for establishing a depository or museum for exhibition and permanent preservation of this material.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF LABOR.

(Officer reporting: Charles P. Neff, Commissioner.)

1. February 14, 1903.

(1) Organized as a Bureau of Labor in the Department of the Interior by act of June 27, 1884.

(2) Made a "Department of Labor" by act of June 13, 1888, independent of other departments, but with no change in the title of the chief officer or in the functions of the office.

(3) Made a "Bureau of Labor" in the Department of Commerce and Labor by act of February 14, 1903, without change of title of the chief officer or the functions of the office. For an account of the origin and work of the bureau see "The Working of the United States Bureau of Labor," by Hon. Carroll D. Wright, in Bulletin 54 of the Bureau of Labor.

3. The facilities of its library are the only resources which this bureau is able to place at the disposal of students. Desk room for four persons and the services of a librarian are provided. The bureau's staff of experts can be consulted in regard to sources of information concerning labor problems, labor conditions, etc., as well as the various phases of the work of the office.

The library of the Bureau of Labor contains approximately 18,000 books and pamphlets, and receives about 200 periodicals. This material may be classed as (a) official publications, and (b) other publications.

(a) *Official publications.*—These consist of reports and other documents published in the United States and in foreign countries, and include:

- (1) Files of all publications of all labor offices;
- (2) Reports of official bodies in charge of inspection of factories and of mines and the enforcement of laws on these subjects;
- (3) Reports of official bodies in charge of the insurance of workmen against sickness, accident, invalidity, old age, death, and unemployment;
- (4) Reports of officials and of boards relating to conciliation and arbitration of labor controversies;
- (5) Censuses of occupations and of industries;
- (6) Reports in regard to the moral, social, industrial, and economic condition of the working people, including wages, hours of labor, conditions of employment and living, etc.;
- (7) Statutes of the Federal Government and of the various States of the United States;
- (8) Decisions of the higher state and the federal courts on matters relating to labor in the United States;
- (9) Labor legislation of foreign countries;
- (10) Statistical yearbooks of the various countries of the world.

(b) *Material other than official.*—This includes:

- (1) Publications of American and foreign sociological, economic, and statistical societies which include labor and related problems within their scope;
- (2) Publications of labor organizations—local, national, and international—consisting of reports, journals, proceedings of conventions, copies of constitutions, trade agreements, etc.;

(3) Miscellaneous publications relating to labor and related problems.

4. No record has been kept.

6. The use of the library is not restricted.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF THE CENSUS.

(Officer reporting: S. N. D. North, Director.)

1. March 6, 1902.

Prior to the establishment of the permanent Census Office each census had been taken by a temporary office or bureau specially organized for that purpose and abolished after the completion of the work.

The Census Bureau in its present form is virtually a national statistical office, with a much broader scope than the name of the office would indicate. Many of the lines of statistical work now carried on by the office have no connection with the decennial census. Some of them were previously conducted by other bureaus, while others are new.

For brief historical statement of census organization, see Organization and Law of the Department of Commerce and Labor, page 78. For more recent developments of the work of the Census Office, see reports of the Director of the Census since 1902.

3. (a) The Census Bureau has a statistical library of about 18,000 bound volumes and 28,000 pamphlets.

(b) The Census Bureau has no laboratory in the strict sense of the term. The mechanical devices and apparatus which it employs in connection with its work present many features of interest, and are exhibited and explained to the visitor on application at all reasonable times, but their use has hitherto been strictly confined to official work.

(c) The office is always ready to answer requests for statistical information on particular questions or topics, supplying the information, if possible, or indicating where it may be obtained. Requests of this character are received every day, and many of them come from students. The office not infrequently supplies copies of some of its reports or bulletins for class-room use. It has never undertaken or been asked to undertake the direction or supervision of statistical work conducted by students not connected with the office force.

(d) The use of the census library is of course freely granted to the office employees. But aside from this no special opportunities for study and training have been provided, except such as are incidental or essential to the conduct of the regular work of the office. Men who come into the bureau for positions requiring more judgment and intelligence than ordinary clerical work usually have to serve a period of apprenticeship to fit them for their duties. The training thus received is believed to be very valuable, but it is not carried beyond the requirements of the position which they are expected to fill, although it may prove to be of great advantage in other lines of work which they may afterwards enter in government service or elsewhere.

(e) Prior to the Twelfth Census a number of college or university students were appointed as clerks upon the nomination of the presidents of the universities from which they came. Though the positions thus filled were technically ordinary clerkships, they were regarded as being essentially fellowships, or positions in which the men could carry on investigations of a statistical character under competent direction. Some of the men appointed in this way returned to academic work after a year or more in the census. One is now professor at Leland Stanford University, another at the University of California, a third at the University of Wisconsin. Others have entered other branches of government service, accepting better-paid positions than the Census Office could offer them. All these men would probably agree that the training received in the Census Office was of great value in qualifying them for the line of work in which they have since engaged.

After the census was made permanent and placed under civil service rules it was no longer possible to make any appointments in the same manner, i. e., upon the nomination of university presidents; but positions of a similar character have been filled by means of a civil-service examination restricted to college graduates. In making these appointments it was assumed that the educational value and training of the positions would be accepted as supplementing the small salaries offered and as forming virtually an important part of the compensation to be considered.

4. No record is kept of the number of persons outside the office who have made use of the census library. The number is not large. No attempt has been made to attract students, but the use of the library is freely granted to all who apply for it.

The number of persons holding positions of the class referred to above (3, c) in the fiscal year 1908 was about ten. They were all college graduates. Their work consisted principally in preparing or editing the text of census reports and bulletins, but they have also been employed to some extent in field work, thus giving them experience in the collection of statistical data.

5. The facilities offered for the fiscal year 1909 will be substantially the same as those which have been available in the past.

6. The use of such facilities as the office offers to outside investigators is not limited to any particular type of inquirers. The positions described above (3, c)—which might properly be designated as student assistantships—have been restricted to college graduates.

DEPARTMENT OF COMMERCE AND LABOR: COAST AND GEODETIC SURVEY.

(Officer reporting: O. H. Titmann, Superintendent.)

1. 1844.

3. (a) The library contains 36,000 books and pamphlets, mostly on subjects concerning the operations of the survey; 35,000 maps and charts, relating mostly to the United States and outlying territories; 61,647 volumes, cahiers, sheets and rolls of records; 5,900 original sheets of topographic and hydrographic surveys; 9,230 negatives and prints of photographs.

(b) None.

(c) Not practicable as a continuous policy under present conditions. Current work too heavy.

(d) As computers in geodesy, tides, and magnetism, and as cartographers.

(e) No provision.

4. No special students. Many persons engaged in the study of particular problems relating to the subjects mentioned in the next paragraph have consulted the office in person or by letter. In the majority of cases by letter and for the purpose of direct practical application, but data are furnished also for theoretical study.

5. The use of the library and archives. The latter containing geodetic and magnetic, tidal, and seismic records, as well as original hydrographic and topographic maps, and records relating to the physical condition of our harbors and coasts commonly classified under physical hydrography. See 3.

6. It is suggested that the use of the facilities to students be limited to those pursuing original investigations calculated to advance the boundaries of knowledge, and graduate students of higher institutions of learning.

Room could be found for about six persons.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF FISHERIES.

(Unsigned.)

1. The Bureau of Fisheries was established as the Commission of Fish and Fisheries in 1871, and continued as an independent bureau until it was incorporated in the Department of Commerce and Labor July 1, 1903. Its original purpose was scientific, economic, and statistical investigations in relation to the fisheries, but the work of practical fish culture was soon added as a necessary part of its functions.

2. From its beginning it was found necessary to secure the cooperation of investigators in addition to those permanently employed by the bureau, and there soon grew up the practice of employing qualified persons connected with schools, colleges, and other institutions of learning, who carried on work related to the bureau's proper functions. At a later period, and especially after the establishment of a laboratory at Woods Hole in 1885, laboratory, library, and collecting facilities were supplied to students who were desirous of conducting research on problems of marine biology more remotely related to the fisheries. Another laboratory was established at Beaufort, N. C., in 1902.

3. The bureau offers opportunities for students at Washington, Woods Hole, Mass., and Beaufort, N. C., the facilities being as follows:

Washington.—(a) The library contains about 21,000 volumes, and is well supplied with matter relating to the commercial fisheries and fairly well provided in matter relating to aquatic zoology. The books of the National Museum and the Library of Congress can also be borrowed when required.

(b) The laboratory facilities are fairly satisfactory as to equipment and material, but are cramped as to space. It is not possible to furnish tables to more than one or two students.

(c) There is no provision for the supervision of the work of students, but the regular employees furnish such assistance as is consistent with their other duties.

(d) The official duties of those occupying scientific positions provide good facilities for study and training under the supervision of the more experienced men.

(e) No provision is made for student assistants at the Washington office.

Woods Hole and Beaufort laboratories.—(a) Libraries are provided at both stations. That at Woods Hole is fairly well equipped with works on marine biology and on the local fauna and flora.

(b) The laboratory facilities consist of tables, aquaria, glassware, microtomes, reagents, fresh and salt water supplies, boats, nets, collecting outfits, and practically everything necessary to the investigator excepting microscope and dissecting instruments, which must be supplied by the persons availing themselves of the privileges of the institution.

(c) Tables are assigned to a limited number of trained specialists, who are accorded all of the above facilities and work independently.

Each season a few trained specialists are employed on salary for two or three months to study problems pertaining to the work of the bureau. They are always men capable of independent work and their reports are submitted to the bureau.

A few temporary scientific assistants are employed for a period of two or three months each season. They receive as pay an amount little more than sufficient to cover their expenses and are engaged in the various investigations of the bureau. To assist these and the paid investigators, student assistants are employed at compensations designed to pay expenses. They work under

supervision of the experienced workers, and earnest young men receive good training.

4. During the summer of 1907 there were employed at the Woods Hole laboratory eight paid investigators, six scientific assistants, and six student assistants.

At the Beaufort Laboratory there were one paid investigator, four scientific assistants, and eight student assistants.

5. The facilities offered during the fiscal year 1909 are essentially those mentioned under answer 3. It is possible that a laboratory on the Mississippi River, for which an appropriation has been made, will be opened during the summer of 1909.

6. Specialists desiring to avail themselves of the privileges of the laboratories are required to make application on the attached form, which stipulates the conditions under which they are accommodated.

The paid investigators are selected by the bureau for their fitness to carry on the studies to which they are assigned.

The temporary scientific assistants are selected from college students and instructors who have had training in biology, and whose applications are properly indorsed as to fitness and character.

Student assistants are selected from properly indorsed applicants from high schools and institutions of related grade.

[Form of application.]

I hereby make application for the use of a table in the laboratory of the Bureau of Fisheries at for a period of about weeks, beginning about 190.....

I wish to carry on special studies on

In the publication of the results of my investigations carried on in the laboratory or on materials collected while there, due credit will be given to the Bureau of Fisheries for the use of the laboratory and its equipment, and six copies of my papers will be sent to the Bureau of Fisheries at Washington for its various libraries.

My last paper was entitled and was published (date).

While occupying a table in the laboratory I will neither collect nor preserve materials to be sold or used for general class-room work except, in the latter case, by permission of the director. I will not use the laboratory reagents for preserving such class-room material.

7. The publications of the Bureau of Fisheries consist of reports and bulletins, of octavo and quarto size respectively, embracing scientific and economic papers relating to the fisheries. Papers submitted by workers at the laboratories will be published by the bureau if suitable.

DEPARTMENT OF COMMERCE AND LABOR : BUREAU OF STANDARDS.

(Officer reporting : W. F. Hillebrand, Acting Director.)

1. July 1, 1901.

4. No exact list can be given of those who availed themselves of the facilities of the bureau for study and research. They included scientific instructors at the universities, technical experts in large industries, and advanced students.

5. The facilities of the bureau include the fundamental standards of length and mass of the United States, calibrated working and derived standards, scales, balances, and verified instruments and accessory apparatus for precision measurements and research in the following lines: Length, mass, capacity, density, time, heat (including thermometry and pyrometry), electrical resistances, electromotive force, electrical capacity and inductance, magnetism,

electrical instruments, light (including interference methods, polarimetry, spectroscopy, radiometry, and photometry), and the testing of materials.

The bureau library consists of 4,000 volumes on the technical subjects connected with the bureau's work. The bureau regularly receives the publications of similar institutions of other countries, and 150 technical journals covering the physical sciences, engineering, and related fields.

6. Applications should preferably be made by personal consultation, although preliminary arrangements could be made by correspondence.

The facilities are open to any well qualified advanced student, unless this will interfere with the regular work of the bureau. The conditions governing such work are flexible, and the bureau will be glad to aid as above any serious student. Experts of manufacturing and industrial laboratories have found it of great value to spend short periods of time at the bureau, in order to study the latest advances in the lines of work enumerated above (see No. 5).

7. In addition to the tests and comparisons made by the Bureau of Standards, its work includes such researches as are involved in the establishment and maintenance of the various standards and units of measurement, the development of measuring instruments and methods of measurement, and the determination of physical constants and the properties of materials. The results of these investigations are published in pamphlet form; a descriptive summary of the contents of these papers is given in the List of Publications of the Department of Commerce and Labor. They cover a wide range of subjects in the field of physical measurements, and are issued for general distribution to the scientific, technical, and industrial interests concerned with the subjects treated. The papers will be sent upon request, and may be designated by the numbers which precede the titles in the list.

DEPARTMENT OF COMMERCE AND LABOR: BUREAU OF STATISTICS.

(Officer reporting: Morris Jacobson, Librarian.)

1. The Bureau of Statistics was established by act of July 28, 1866,^a as part of the Treasury Department. Its main work, the collection and publication of the Statistics of Foreign Commerce and Navigation, formerly devolved upon the office of Register of the Treasury, which contained divisions of tonnage and commerce and navigation, in pursuance of act of February 10, 1820, for the periodic publication of import, export, and navigation accounts. The bureau was organized by Mr. Alex Delmar, as director, in 1866,^b who was succeeded by Gen. Francis A. Walker; the latter took charge of the bureau as Deputy Special Commissioner of the Revenue, and continued to act in that capacity until February 7, 1870, when he became Superintendent of the Ninth Census.

The organization of the office, as adopted by General Walker, practically remains unchanged, except that a Division of Internal Commerce was added later, which was made an integral part of the bureau about 1900.

2. The library of the bureau, when first established as part of the office, contained about 3,000 volumes, mainly statistical, economic, and historical works, bearing more or less directly upon the work of the office, and containing, among others, such official reports of our own and foreign governments as could then be spared from the library and other divisions of the Treasury Department.

^a Thirty-ninth Congress, first session, chapter 298, 1866.

^b See Finance Report, 1867, page 240 and following. Finance Report, 1868, page 400 and following. Fortieth Congress, second session, chapter 176, 1868: An act making appropriations for the legislative, executive, and judicial expenses of the Government.

Since then it has grown mainly by exchanges and gifts and now contains probably the fullest collection of foreign trade reports in the country.

3. As the work of the bureau is mainly of a routine character, i. e., the compilation of the monthly and yearly statistics of our foreign and internal trade, scientific students and investigators, unless especially interested in the methods of compilation and tabulation used in the office, as a rule have been able to utilize the library material only. This material is composed mainly of economic and statistical matter bearing upon industrial and commercial questions. The library has fairly complete sets of the standard statistical and commercial publications, such as the Journal of the Royal Statistical Society, the Bulletin of the International Statistical Institute, the Journal of the Statistical Society of Paris, the London Economist, the Economiste Français, the Journal des Economistes, etc. Of late some of the more important German economic and statistical publications have been received by exchange, including the Jahrbücher für Nationalökonomie und Statistik, the Allgemeines Statistisches Archiv, as well as some of the Russian financial and commercial publications.

Of American publications of similar character the library has, among others, full sets of the Commercial and Financial Chronicle, Bradstreet's and Dun's Reviews, the Banker's Magazine, etc. Sets of earlier publications, of value to the student of the industrial and financial history of the United States, on file include Niles' Register and Hunt's Merchants' Magazine. The statistical publications of the various departments of the Government, as well as of the various States, constitute another important section of the library.

Of official foreign publications of similar character the library has bound sets of the Deutsches Handels Archiv, Das Handelsmuseum, Le Moniteur Officiel du Commerce, with annexes containing the published reports of the German, Austrian, and French consuls to their home governments, also the Bulletin de Statistique and the Vestnik Finansov (Russian).

4. Notwithstanding the crowded condition of the library, quite a number of American and even more of foreign students have been making use of the material on file during recent years. No record has been kept of such persons, and I am, therefore, unable to give their names. The library is used a good deal by the Washington correspondents of the daily papers, and especially of the trade publications, in order to glean current news, particularly during the summer months, when Congress is not in session. No discrimination has been shown in favor of any class of inquirers or investigators. We have been trying to accommodate and assist them to the best of our knowledge and ability, though the overcrowded condition of the library and the absence of special reserve space for outsiders may have acted as a deterrent in some cases.

The main function of the library has been to assist the work of the chief and experts of the bureau in the preparation of the numerous commercial monographs which have appeared from time to time since the organization of the bureau, as well as in the compilation of the Statistical Abstract of the United States. The experts in the Bureau of Corporations have also had frequent occasion to use its material in connection with their official work.

INTERSTATE COMMERCE COMMISSION.

(Officer reporting: Leroy Stafford Boyd, Librarian.)

1. The Interstate Commerce Commission, created by act of February 4, 1887, is an independent bureau of the Government, which has for its object the administration of the various acts of Congress relating to the regulation of

interstate carriers. Prior to the act of March 2, 1889, the commission was required to make its annual report to the Secretary of the Interior, to be by him transmitted to Congress, and the accounts of the commission were to be jointly approved by the chairman of the commission and the Secretary of the Interior; but since the above-mentioned date the commission has been an independent body, subject only to the action of Congress and the President.

The library of the commission was established in 1894.

2. The records of the commission are complete from its organization on March 31, 1887, are admirably arranged and indexed, and, with few exceptions, are accessible to the public. The annual reports of the commission contain lists of cases, abstracts of decisions, and other material, which not only serve to indicate in some detail the character of the more important files, but in many cases make recourse to the original papers unnecessary.

3. In accordance with the act to regulate commerce and the amendments thereto, the Division of Rates and Transportation receives the following from carriers doing an interstate business:

(1) Schedules (or tariffs) of freight rates and passenger fares of steam and electric railroads, and of steamer and other water lines subject to the act.

(2) Schedules (or tariffs) of transportation charges of express companies, sleeping-car companies, and pipe lines.

(3) Contracts and agreements pertaining to traffic arrangements between common carriers.

This division, popularly known as the "Auditor's Office," has received and filed since its organization in 1887 approximately 3,100,000 tariff schedules relating to freight and passenger traffic of the nature above described, each tariff containing from 1 to 500 pages, and from 1 to 1,000,000 different rates, taking into consideration different commodities and different distance points.

Besides the tariff schedules the archives of the division include 1,063,116 Letters of Transmittal and 2,950,496 Certificates of Concurrence, the latter begun in 1894.

The tariffs filed by the companies are completely indexed and cross-indexed as to commodities and places, in sets of indices prepared for each company.

The files of this division are open to the public.

The Division of Statistics and Accounts has in the original a complete set of annual reports filed by all interstate carriers from 1888 to the present time, and also the correspondence between the division and the carriers in the preparation of these reports for publication in the annual volume of Statistics of Railways in the United States. By the terms of the Hepburn Act of June 29, 1906, these annual reports are made "public records," and there is little doubt that the annual reports filed prior to that act are also open to public inspection.

Beginning with July 1, 1907, this division has received monthly statements of revenues and expenses from carriers by rail. While these are not by law "public records," yet they are so treated, and are made available for use by any one who may care to consult them.

This division has from time to time undertaken special investigations covering points respecting which information was desired not covered in either the Annual or monthly reports. Some of these investigations are of general interest, and while not regarded as "public records," they may become available for the student upon such conditions as the commission may prescribe.

The correspondence of the division relative to the reports and accounts, especially the correspondence of the last two years, during which time the formulation of a system of accounting has been under consideration, contains a vast amount of material which might prove of interest to students of trans-

portation. Permission to use these files, however, is granted only upon special request.

This division expects in the near future to have on file complete records showing the laws passed by the various States regulating railroads, and also the rulings and findings of the several state railroad commissions.

In addition to the reports of steam railroads, this division also receives reports from express companies, electric railways, sleeping-car companies, water carriers, and pipe lines in all cases where they do an interstate business.

The library of the commission is of increasing value each year for reference purposes. The commission receives many requests for information on questions pertaining to railroads and other transportation subjects, and its library has proven invaluable in answering such inquiries. It is the aim of the commission to accumulate a complete collection of books and pamphlets, public and private, relating to all phases of transportation, both domestic and foreign, and to include railroads, canals and other waterways, telegraphs, telephones, and common roads. In fact, it hopes to obtain all literature which would be of interest to the student of transportation, its management and regulation. The largest outlay in the administration of the library is the annual expense for works of purely legal character relating to the federal regulation of railways. A large periodical list is maintained, and about 80 per cent of all accessions are without cost to the commission. The work of administration calls for constant study and indefatigable labor. It is gratifying that the collection has been of value to the growing needs of the public in general, to students of railway economies all over the country, to representatives of the press, and to foreign representatives residing in Washington. The value of the library to the commission and to the other departments has been amply demonstrated by its continued usefulness for the past fifteen years, during which time it has received the constant support of the commission.

The library consists of 13,000 bound volumes and 11,000 unbound pamphlets, a large percentage of which are fugitive and noncopyrighted. A system of exchange with other libraries is maintained, by which the library has been greatly enlarged. A detailed description of the library may be found in the Fourteenth Annual Report of the Commission, 1900, pages 85-86, and in a report submitted on April 21, 1906, to the Keep Commission on Departmental Methods.

The following publications comprise some of the leading features of the library:

- Publications of the Interstate Commerce Commission.
- More important publications of the various departments.
- Reports of the various state railroad commissions.
- Reports of railroad directors to stockholders.
- Railroad brotherhoods and clubs.
- Railway periodicals.
- Transportation pamphlets.
- General and special treatises on transportation.
- State manuals.
- Reports of state auditors.
- Reports of state tax assessors.
- Reports of boards of trade and chambers of commerce.
- Decisions of the federal courts.
- New York appeals reports.
- Illinois reports.
- Iowa reports.
- American decisions and American reports.
- Lawyers reports, annotated.
- American and English corporation cases.
- American and English railroad cases.

Railway and canal cases. [English.]
 Railway and canal traffic ca. w. [English.]
 Canadian railway cases.
 American and English Encyclopedia of Law, second edition
 Cyclopaedia of Law and Procedure.
 American negligence reports.
 Opinions of Attorneys-General.
 Court of Claims reports.
 Decisions of the Comptroller of the Treasury
 Legal treatises.
 Official reports on foreign railways.
 United States Statutes at Large, 1789-1908.
 United States Compiled Statutes.
 Federal Statutes, Annotated.
 Congressional Record, 1885-1908.
 Report of the Industrial Commission. Nineteen volumes
 Archiv für Eisenbahwesen. Complete set.
 Consular reports. Complete set.
 Bulletin of the International Bureau of American Republics. Complete set
 Bulletin of the International Railway Congress. Complete set
 Proceedings of the International Railway Congress. Complete set.
 Congressional documents and reports relating to interstate commerce and private
 committee hearings.
 Bills and resolutions relating to interstate commerce.
 Addresses and papers, 1863-1879. By Judge Thomas M. Cooley. 8°. [Collection
 of pamphlets.]
 Congressional Debates on Interstate Commerce. Compiled by U. H. Palter. 1884-
 1895. Washington: 1884-1895. [In 8 parts.] 8°. [Printed from government stereo-
 type plates.]
 Report of the Hepburn Committee in the Investigation of Railroads in the State of
 New York in 1879. Testimony and reports, 6 volumes. 8°.
 Interstate Commerce Commission. Addresses, papers, etc., by commissioners and sec-
 retary, 1885-1907. Two volumes. [Compiled by Charles W. Kendall.] 8°.
 Hepburn Bill, H. R. 12987, Fifty-ninth Congress, first session. Approved June 29,
 1906. Bills, resolutions, reports, documents. With table of contents and index-digest.
 Compiled by Leroy Stafford Boyd, acting librarian. [Consists of 183 separate publica-
 tions.] 4°.
 Interstate Commerce Speeches, 1884-1885. [A compilation of separate speeches.] 8°.
 Speeches on Interstate Commerce, Fifty-ninth Congress, 1905-1907. Compiled by
 Leroy Stafford Boyd, acting librarian. Two volumes. 8°. [A compilation of separate
 speeches.]
 Steam Railway Accidents, Great Britain and the United States Compared, 1895-
 1905. Compiled by Leroy Stafford Boyd, acting librarian. One sheet. old. f°.

INTERNATIONAL BUREAU OF THE AMERICAN REPUBLICS.

(Office reporting: John Barrett, director.)

1. 1891.
2. The principal facilities offered by this office for advanced study and research are such as might be obtained from the Columbus Memorial Library, which is connected with the office and under its supervision. This library was reorganized in 1901 and given the name it now bears. It contains about 15,000 volumes relating to the American republics, principally law, history, and government publications.
3. In its present location the Columbus Memorial Library is much limited in the facilities it can offer to students on account of want of space. A limited number, however, were welcomed to the use of the library, and were given such assistance as it was within the power of the attendants to render.
4. No record has been kept of the number of persons availing themselves of the library during the fiscal year 1908. The number is not very large, probably four or five hundred. These were all apparently special or general students of Latin-American affairs.

6. The only rules governing admission to the use of the library are that the person applying must have a serious purpose in wishing to consult the books, and must not abuse the privileges extended. Ordinarily, admission to the stacks is not allowed, but in a proper case this rule may be waived.

ISTHMIAN CANAL COMMISSION.

The Isthmian Canal Commission reports that it has no special facilities available for students of any class whatsoever.

UNITED STATES BOTANIC GARDEN.

(Officer reporting: W. R. Smith, Superintendent.)

1. 1850.

2. The opportunities for study consist of four or five thousand object lessons in botany, open to all visitors from 8 a. m. to 5 p. m. every working day. The tropical collection is rich in palms, containing 125 species, and in ferns of the genus *Hees*, a very interesting exhibit of 30 species. There is a large collection of succulents, orchids, and insectivorous plants. There is also a miscellaneous general collection grouped in five divisions in the main conservatory; tropical in center, all south of the equator in one wing and north of the equator in the other, facilitating exits at the two cool ends. The outdoor collection is grouped after Doctor Gray's five divisions.

3. Offers were made by Senator L. M. Morrill, chairman of Library Committee, some years ago, and were taken advantage of one season by Howard University students, but no others applied. Medical students are not examined as much in botany now as in previous years. Trinity College (D. C.) botany class made frequent visits with an instructor, and botany classes from District high schools come from time to time during the school year.

SMITHSONIAN INSTITUTION.

(Officer reporting: Cyrus Adler, Assistant Secretary.)

1. 1846.

2. The Institution aids investigators by making grants for research and exploration, supplying books, apparatus, laboratory accommodations, etc. It occasionally provides for lectures, which are published. It maintains, in co-operation with the Library of Congress, a library which numbers 250,000 volumes, and consists mainly of the transactions of learned societies and scientific periodicals. Whilst the body of the library is deposited in the Library of Congress and accessible to all its readers, a working library is maintained at the Institution.

The parent Institution has the administrative charge of several branches which grew out of its early activities and which are supported by congressional appropriations. These are the National Museum, including the National Gallery of Art; the International Exchange Service; the Bureau of American Ethnology; the National Zoological Park, the Astrophysical Observatory, and the Regional Bureau for the International Catalogue of Scientific Literature. [The Exchange Service and the Catalogue of Scientific Literature are occupied

with the publication and distribution of matter for investigators outside of Washington. For the work of the remaining institutions, see the detailed reports which follow.]

3. In addition to the main portion of the Smithsonian Library, which (as stated under No. 2) is deposited in the Library of Congress, there is maintained at the Institution a working library, which is available for consultation to any students or others who may wish to avail themselves of the privilege. Facilities could be provided for perhaps a dozen students.

The Institution proper does not maintain any general laboratory in the Smithsonian building. It, however, leases a table at the Naples Zoological Station, which is placed at the disposal of investigators. The facilities available in the laboratories of the Institution's various branches are mentioned in the reply from each branch.

While no special arrangement has been made for the direction and supervision of students, members of the Institution's staff are glad to aid, as far as practicable, any properly qualified student.

No provision for the employment of student assistants is possible from the limited funds at the Institution's disposal.

4. During the past year the Schenckraft manuscripts in the possession of the Institution have been examined and a portion of them copied by members of the staff of the Department of Historical Research, of the Carnegie Institution of Washington.

The library is consulted each day by individuals engaged in researches on various subjects. No list of names is preserved.

6. While the accommodations at the Institution are somewhat limited, such facilities as may be possible will be given to any properly qualified student engaged in any original investigation.

SMITHSONIAN INSTITUTION: NATIONAL MUSEUM.

Officer reporting: W. deC. Ravenel, Administrative Assistant.

1. The museum of the Government was established by the act of Congress approved August 10, 1846, founding the Smithsonian Institution. It was designed to include both nature and art, without limitations. The designation "United States National Museum" has been used in all the acts of Congress since 1875, in which year it was first so employed. While the museum was practically organized in 1850, by the employment of an assistant-in-charge, it was not until 1858, when the Smithsonian building had been completed, that all the government collections then existing were brought together in that place.

It can scarcely be said that there has been any real change in the status of the National Museum since the beginning. With the increase of the collections, assistants have been added from time to time, specialists in each of the branches represented, and the head of each branch reported directly to the person in charge of the museum.

For convenience of administration, however, the several branches were segregated in 1897 under three headings, called departments, as follows: Biology, Geology and Anthropology. The last-named department included not only ethnology and archeology, but also all the activities of civilized man. Some modifications of this classification will soon be made.

In 1903 the department of the fine arts, which had been authorized in the original act, but had not been developed, owing to the pressure of other subjects,

was definitely organized as the National Gallery of Art, the stimulus to this action being supplied through several contributions of exceptional importance and value.

The subjects now most fully represented are zoology, botany, geology (including paleontology), the ethnology and archeology of North America, certain branches of the arts and industries, such as firearms, land and water transportation, methods of lighting, time-taking devices, measuring apparatus, electrical inventions (the telegraph and telephone), ceramics, glass-making and decoration, etc., and paintings by contemporary American artists.

2 and 3. The use of the study collections has always been fully granted to properly accredited investigators, and no modification in the museum's policy in this respect was made during the year 1907-8. Not infrequently, material desired for study is sent away from Washington, but this is done only when it is impossible for the applicant to come to the museum. It is especially desirable that such studies should be carried on in the museum building when type material has to be consulted, as the lending of type specimens is in general discouraged.

The systematic classification of the collections demands a large amount of scientific research, and as far as possible this work is done by members of the staff.

As the National Museum, whose primary duty is the preservation of the national collections, performs the double function of affording opportunity for research and the general instruction of the people, the public exhibits are so selected as to form an excellent means of study.

The museum has minor laboratories and working rooms equipped for the immediate needs of the scientific work of the staff, in classifying and describing collections. There is practically no opportunity in these laboratories for outside students owing to the limitations of space.

The museum occasionally distributes to educational institutions sets of carefully selected and labeled specimens of various kinds, such as fishes, marine invertebrates, rocks, and ores, minerals, and fossils. It is doubtful, however, if very much can be done in this direction for some time to come, owing to the crowded conditions which exist and which render the overhauling of the duplicates difficult, if not impossible.

Each annual report of the National Museum contains under the heading "Research," or some similar caption, the statement showing the extent to which this use of the collections was made during the year.

When specialists or advanced students are granted the privilege of studying the collections, it is assumed that they do not need supervision, and at present there is no provision for furnishing assistance of this kind. Advice as to the particular groups of specimens which will best cover their needs, or which it is thought would be of a special value in their work, is gladly given by the curator having direct charge of the collections, and he is also expected to exercise such reasonable care as will prevent improper use of the specimens, but beyond this no direction or supervision is given.

The student who has not had special training in scientific methods could hardly make profitable use of the collections, and indeed requests from such are very seldom received. No earnest applicant, however, is allowed to feel discouraged, and every effort is made to meet his wants as far as possible, provided that he can carry on his work without consuming too much of the curator's time.

Members of the museum staff are encouraged to make investigations on the collections under their charge, but assistants in the lower grades are expected

to seek their opportunities for research work both through constant contact with the collections and by daily association with the higher and more experienced officials.

There is no special provision for the appointment of students as assistants in the scientific departments of the museum, and the engagement of volunteers without pay is prohibited by law.

The facilities of the working library, which now contains more than 85,000 volumes, unbound papers, and manuscripts, are daily availed of, not only by members of the staff, but also by specialists attached to other scientific bureaus of the Government—especially in the various divisions of the Department of Agriculture, the Bureau of Fisheries, and the Hygienic Laboratory of the Marine Hospital Service. No exact account is kept of the number of persons by whom these advantages are utilized, but it can be safely said that hardly a day passes without a hundred or more volumes being called for by those needing to consult them in connection with some special investigation.

4. The statistics for the fiscal year 1908 are not yet definitely available, but it is more than likely that at least 200 investigators availed themselves of the museum collections during that period.

5. The facilities which can be offered to students during the year 1908-9 will probably be no greater than those of preceding years. In fact, they may be even less, for not only has the museum become more crowded, but the problem of the removal of the scientific collections to the new building will tax the energies of the entire staff. With this removal, however, which will probably take place during this year, it is reasonable to hope that the facilities offered to students will be greatly increased.

6. The regulations regarding investigators are as simple as possible. Little is required other than to furnish assurance of good character and scientific ability; as a rule, a brief indorsement to that effect from any scientific person in good standing or from the head of the institution with which the applicant is connected is all that is needed.

As already intimated, it is not possible to make special provision for the accommodation of students. Each applicant for the privilege of studying collections in the museum building is made fully aware of the conditions, however, before consent is definitely granted.

SMITHSONIAN INSTITUTION: BUREAU OF AMERICAN ETHNOLOGY.

(Office reporting—W. H. Holmes, Chief.)

1. 1879.

2. The facilities offered for advanced study and research prior to 1908 were limited to the use of the library of upward of 20,000 books and pamphlets relating to ethnological subjects; the privilege of consulting the 10,000 linguistic manuscripts contained in the archives of the bureau; the use for purposes of study of the 15,000 photographs of Indians and Indian subjects; the use of a desk, and the privilege of consulting with the ethnologic staff of the bureau.

3. (a) The library has table privileges to accommodate five or six persons.

(b) The photographic laboratory will accommodate two or three students engaged in photographic work and experiments.

(c) The ethnologists of the bureau, seven in number, could give some attention to an equal number of students.

(d) Practically all the members of the scientific corps spend at least a part of each year in original research in the field.

(e) No provision can be made for appointment with pay of student assistants.

4. During the present year Miss Densmore, of Red Wing, Minn., spent several weeks in the office engaged in preparatory studies relating to Indian music. A number of Indians of visiting delegations were induced to sing their native songs into the phonograph and valuable records were secured. Miss Densmore spent some months during the previous year among the Chippewa Indians of Minnesota studying the music of the "Grand Medicine" ceremony, and will continue this work during the summer season under an allotment of funds from the bureau.

Mr. David I. Bushnell, jr., an archaeologist of standing, has pursued his studies at the bureau, enjoying the privileges of a member of the staff, and the same is true of Dr. H. A. Scamp, of Tennessee, who is engaged principally in the study of the Indian languages of the Southern States. The library has been frequented by a number of scholars, largely members of the faculty of the Catholic University, engaged in the main in linguistic and historical studies.

5. Without enlargement of office space the bureau can not afford greater facilities to students than are indicated above. On completion of the new building for the National Museum it is probable that additional room will be available.

6. The bureau is devoted to research exclusively and the facilities for students other than those pursuing original investigations are necessarily limited.

SMITHSONIAN INSTITUTION: NATIONAL ZOOLOGICAL PARK.

(Officer reporting: Frank Baker, superintendent.)

1. 1895.
2. To students of natural history the examination, comparison, and observation of the habits of animals. Photographing is allowed. To artists special facilities for representing animals either by drawing, painting, or modelling.
3. A special shelter has been made for the use of artists who wish to sketch in the open without attracting the attention of the animals. Every practicable facility is afforded to those who wish to sketch in the houses.
4. No record kept. A considerable number of specimens of blood from animals was furnished Dr. Edward T. Reichert, who has been conducting a series of investigations on blood crystals under the auspices of the Carnegie Institution.

SMITHSONIAN INSTITUTION: ASTROPHYSICAL OBSERVATORY.

(Officer reporting: F. E. Fowle, std.)

1. March 3, 1891. Previously started by the Smithsonian Institution, 1880.
2. In 1906 Mr. H. H. Kimball, of the United States Weather Bureau, was assigned to the observatory for special instruction in spectro-bolometric work.
3. (a) The library contains such books as relate to physics and astronomy, especially radiation and spectrum absorption.
- (b) Laboratory facilities are exceptional for bolometric and spectro-bolometric research. An instrument shop is connected with the observatory for the construction of necessary laboratory apparatus.

(f) Students will be expected to take part in such work as relates to the main researches undertaken at the observatory. During 1908 this relates to the radiation of the sun and the temperature of the earth.

6. These facilities are in general open only to graduate students pursuing original research connected with the main researches under progress at the observatory. Such students must satisfy the director that they are qualified for the work.

SMITHSONIAN INSTITUTION: BUREAU FOR THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

The Bureau for the International Catalogue of Scientific Literature and the International Exchange Service are organizations to secure the cooperation of investigators in different parts of the world, and have no distinctive importance for the student who resides at Washington.

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